The Mining Journal

LONDON, DECEMBER 19, 1958

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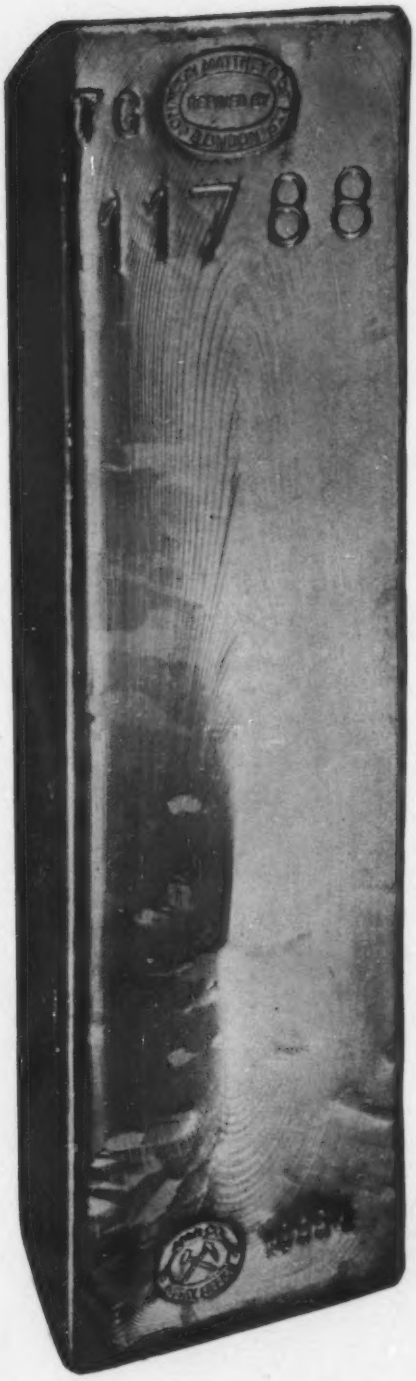

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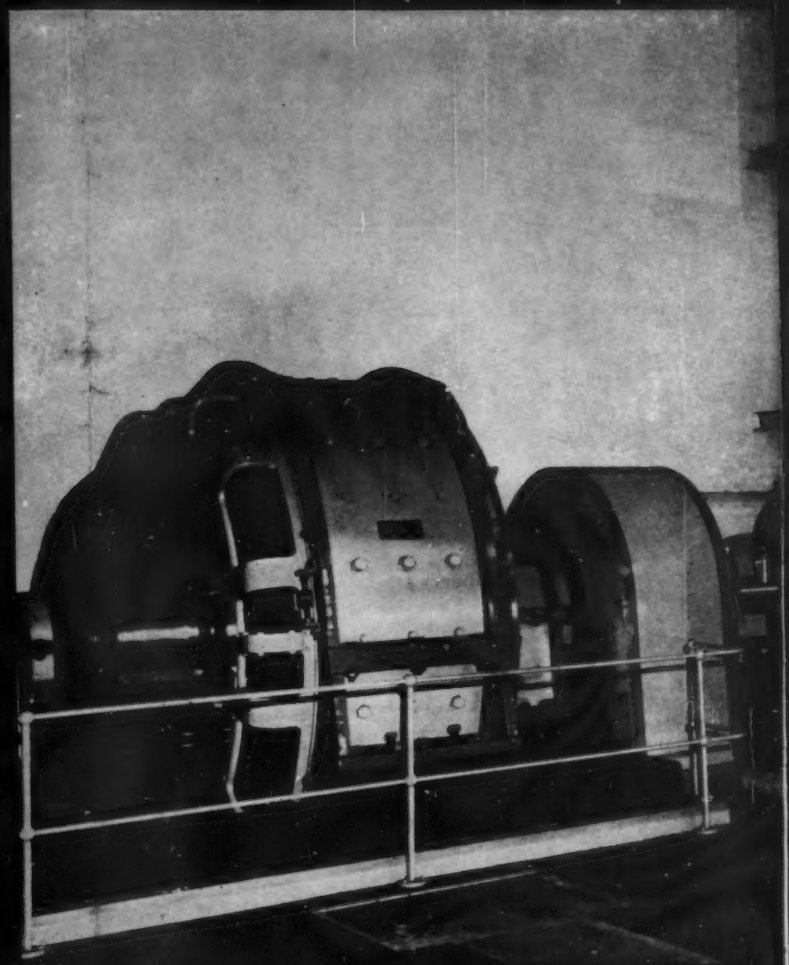

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Stabilization of Commodity Prices

IN times of surplus and falling prices, the thoughts of commodity producers tend to be drawn increasingly to the advantages of internationally controlled marketing schemes through which production might be geared to demand or prices stabilized within limits economically acceptable to producers and users alike.

The unhappy experiences of producer countries during the current year, when marketing difficulties were further aggravated, in the case of lead and zinc, by protectionist measures in the largest consumer country, have given a renewed impetus to attempts at commodity stabilization, at any rate outside the Communist *bloc*. At the same time there is growing recognition by industrial countries that saturated commodity markets and depressed prices, by undermining the economies of the producer countries, are not only damaging export prospects for capital equipment and manufactured goods, but are also a dangerous threat to the economic defences of the Free World as a whole.

It will be recalled that at the Montreal Conference one of the most important issues was commodity stabilization, which concerns the United Kingdom as the largest purchaser of raw materials in the Commonwealth, and the Dominions and Colonial territories as primary producers.

Apart from the decision to launch an immediate international study on lead and zinc, the U.K. agreed to arrange future Commonwealth talks on particular commodity problems troubling other members, in cases where no other specific international machinery existed. The primary producing countries on their part accepted that such machinery must be used to the full, that long-term trends in supply and demand must be recognized, and that the co-operation of all producing and consuming countries was needed for effective action.

Last week the problem of commodity prices was approached on a still wider front, when Britain, Canada, Australia and Malaya were among the 11 sponsors of a new move launched in the United Nations. A draft resolution introduced in the General Assembly's Economic Committee urged U.N. member governments to examine, commodity by commodity, the question of what steps could be taken to solve particular commodity problems. It appealed to all member governments to increase their efforts to promote conditions favourable to the expansion of international trade and to take into account in their commercial policies and trade practices "any possible harmful repercussions which they might have, particularly on the trade of underdeveloped countries".

The draft also expressed the hope that countries which did not participate in, or co-operate with, established international trading arrangements, would refrain from the use of unfair trade practices that would impede or prevent the satisfactory working of those arrangements. This section was no doubt aimed impartially at the Soviet Union, which recently came very near to disrupting the I.T.A. by stepping up its tin exports and the U.S.A. whose lead/zinc quotas have certainly done nothing to help the producer countries, and—what with barter deals and fabricated imports—may

not even prove to be a very efficient way of helping the domestic producers.

Described as the strongest statement of trade principles by the United Nations ever to be endorsed by the United States, the draft resolution was passed by 67 votes to one. The only dissentient nation was Brazil, which opposed the resolution on the ground that it was " a half-measure when bold measures are needed ".

Strong statements of principle by no means necessarily lead to strong commodity agreements and it may fairly be asked what reason there is to suppose that this latest declaration is likely to bear fruit where the high hopes of better things at the end of World War II have only resulted in the Havana Charter and the F.A.O. producing two or three noticeably fragile commodity agreements. To avoid undue disappointment it is, therefore, as well that we should be clear as to the kind of problems with which the U.N. is proposing to grapple.

In the first place the resolution implicitly makes two assumptions with which we cannot but wholeheartedly agree. The first is that entirely free trading in primary commodities on a world-wide scale ceased long ago and seems unlikely ever to return. The second is that, given that commodity markets are in any event to be afflicted with restrictions, then an effective scheme of international control is greatly to be preferred to the jungle of uncoordinated attempts at self-protection to which individual countries have resorted, usually with unpredictable and often quite unintended consequences.

Thus, the crux of the problem is whether an *effective* international agreement can be devised. The one thing nobody wants is another control scheme which is not reasonably watertight. The tin agreement had a very narrow squeak, which should certainly give governments cause to consider deeply before embarking on attempts at controlling other metals where the problem is inherently more difficult, either because many more producer countries are involved or because secondary metal is a much bigger market factor or because world statistics, more especially on the consumer side of the equation, are much more incomplete or tardy in publication.

Obviously, it is vital to profit from experience of the tin agreement and in this connection the comments on the working of tin control circulated this week to shareholders of the Sungei Besi and Ayer Hitam tin companies by the chairman, Mr. G. W. Simms, are highly relevant. In effect, Mr. Simms has drawn attention once again to the lesson, which has apparently yet to be learnt by tin restrictionists, that we cannot stabilize both prices and output. Even assuming that an agreement has no major leak in it, such as Russia's non-adherence to the I.T.A., we can only hope to stabilize production *or* prices.

Mr. Simms brings out clearly in his statement the embarrassments which the price levels written into the I.T.A. have brought to the scheme, and he cites as an example the recent difficulties of the buffer stock manager " in being compelled to support the known buffer stock floor price of £730 with financial resources which were known to be under severe strain through big quantities of tin coming on to the market. The probability that he might not be able to maintain the floor price encouraged consumers to reduce their stocks below what would normally be considered adeqate to their requirements. When the buffer stock manager withdrew his support, with the result that the normal open market price mechanism again began to operate, and it became known that the special fund was not bound by the buffer stock price ranges, the market, after a sharp fall in price, quickly reacted to a figure justified by the statistical position ". As Mr. Simms points out, the significant thing about the special fund has been that it has not been subject to these fixed price ranges, a fact which he interprets as a tacit admission of weakness in the original tin agreement.

The fact is, of course, that if the buffer stock manager went out of business tomorrow, an effective control scheme could probably still be operated in the long-term purely by quota restrictions on output. The function of the buffer stock has never been other than to even out short-term maladjustments, and there seems good reason to think, as Mr. Simms suggests, that this would have been far more readily achieved had the buffer stock manager been allowed to operate on the market without disclosing his hand.

Apart from considerations of market strategy, there are, of course, two major reasons why, for most metals, physical control of production is a far more effective stabilizer than any attempt at price manipulation. The first is that, aside from problems of substitution, consumer demand is usually inelastic. Whatever tonnages the consumer wants, he must have, and within wide limits he will pay the going price and pass it on to the end user. The second factor is that the expansion or contraction of a mining industry is normally a slow process on which price movements make only a delayed impact.

By far the most important lesson to be learnt from tin control is, of course, that to have any chance of success it must be fully international. Up to the present time, in fact, there has not been a single scheme for commodity control launched with 100 p.c. support from all the principal countries concerned. That is why few schemes have survived and those that have done so have existed precariously and fallen short of expectations. Where a scheme, whether launched by a private cartel or through government channels, is not fully representative of the trade concerned, it will assuredly be jeopardized by increased production from sources outside its control, for which willing markets will almost certainly be found in the non-participating consumer countries.

Restrictions also lead to smuggling and black markets, as appears to be happening at the present time with tin, for there are rumours of large quantities of metal being exported from South Siam and Indonesia beyond the quota set by the I.T.C. Even if a scheme has 100 per cent backing from the principal producer and consumer countries, attempts to develop a black market must be expected when arbitrary quotas are imposed.

In view of the limited number of producer countries, the relatively small tonnages involved, and the absence of secondary production on a significant scale, it would appear to be much easier to devise and put into operation stabilization machinery for tin than for any of the other major metals. Much attention has recently been devoted to lead and zinc, but so far nothing concrete has emerged either from the abortive London conference or from the recent conference at Geneva, where 30 nations decided to set up an international study group to consider ways and means of overcoming present difficulties and to examine the possibility of establishing some kind of short-term agreement. A third meeting will probably be held early in March in New York under the auspices of the United Nations to discuss further the problems of excess world production and price stabilization for both metals. It is noteworthy that the Russian delegate to the United Nations has expressed his government's willingness to participate in discussions and schemes for stabilizing the prices of lead and zinc.

How far government interest in the problems of commodity stabilization is strictly economic and how far it stems from political motives is by no means clear. Is it intended to evolve some form of stabilization, by controlling either production or prices, which will iron out fluctuations and keep the trade on an even keel within what are

effectively the optimum economic limits? Or are prices to be geared to the requirements of high-cost producers whose welfare is politically important? Whichever is the intention, it is important that the aim should be clearly defined and appreciated, in order that there may be no risk of falling between the two stools of political and economic planning, which are by no means always compatible.

Another point which should not be overlooked is that the present phase of surplus production will not last for ever. Indeed, if the American recovery continues and industrial production on this side of the Atlantic resumes its upward trend, it will not be many years before the demand for primary commodities is once again tending to outstrip supplies. Great care is therefore required to ensure that schemes of commodity stabilization devised at a time of surplus are sufficiently flexible to maintain a no less equitable balance between producer and consumer interests when shortages return.

Finally, by no means the least interesting conclusion to be drawn from the marketing problems presented during this difficult year is that those sections of the mining or metal industries, where the bulk of the output is produced by a few strong companies, are quite capable of putting their own house in order without any marketing scheme. The nickel industry, in which a single producer accounted last year for 145,000 s.tons out of total Free World supplies of 245,000 s.tons, is particularly well situated in this respect. As a result of output cuts by major producers the supply of copper has been equated with demand and a strong statistical position restored. Indeed, the copper industry made it clear at the London conference that it neither wished nor needed any international scheme for price stabilization. The aluminium industry, apart from one downward adjustment, has been able to maintain its price structure despite growing competition from cheaply offered metal from Communist sources.

There is, in short, no one sovereign cure for unstable commodity markets.

SOMALILAND'S MINERAL RESOURCES

The mineral resources of the British Somaliland Protectorate are reviewed by Dr. J. W. Pallister, director of the Geological Survey Department, in the current issue of *Overseas Geology and Mineral Resources* (Vol. 7, No. 2—H.M.S.O., price 10s. net). This survey should be studied in conjunction with the department's recently issued report for the period April, 1957 - March, 1958.

Only very small-scale and intermittent working of minerals has so far occurred. There are, however, vast resources of gypsum-anhydrite, including very large accessible deposits at Suria Malableh, less than ten miles from the port of Berbera. A considerable programme of analyses has indicated probable reserves of 6,500,000 tons of gypsum with an average grade over 90 per cent and less than 3 per cent carbonates at Suria Malableh. Nearly 500,000 tons of very high-grade anhydrite with less than 1 per cent carbonates are also present. There are possible reserves at this locality of more than 30,000,000 tons of high-grade sulphates.

Beryl, cassiterite, columbite, mica, guano and salt have been worked on a small scale; deposits of copper minerals, barytes, fluorite, galena, manganese, monazite, samarskite, sulphur and talc also occur, but are unlikely to prove large. Other minerals recorded in the territory include asbestos, lignite, graphite, iron ore, kaolin, molybdenite, oil shale, rutile and vermiculite.

The presence of beryl in large crystals in a pegmatite at Darreh Hos was reported as far back as 1924 and further beryl-bearing pegmatites have since been found. In March, 1955, Minerals Research and Development Corporation took out a mining lease to work columbite and beryl on a small scale in the Henweina Valley around Darreh Hos. Up to the end of 1956, when the lease was surrendered, some 33 tons of beryl concentrates had been exported.

Last year the pegmatite swarm which had been worked for beryl and columbite was examined. Finds of beryl and columbite in pegmatite swarms near Bur Mado in the Hargeisa district show considerable promise and this area will repay more detailed prospecting.

Corundum-spinel and emery rocks were recognized in the basic intrusions of the Hargeisa district; some specimens contain 50 per cent corundum. This is the first record of the mineral in the Protectorate.

A small tin deposit at Dalan, Erigavo district, was worked by a mining company in 1957, but little serious development work was carried out by the operators, most of the concentrate being obtained from eluvials. Although the area generally does not at present show promise of a large producer, it is regarded as worthy of more detailed and systematic prospecting.

LAND PRIORITY FOR MINING IN MALAYA

Fears that the Government of the Federation of Malaya had shelved the Report of the Land Administration Commission, submitted in August, 1957, reviewed in *The Mining Journal*, July 11, 1958, were somewhat assuaged by a statement made by the Minister of Natural Resources, Inche Bahaman bin Samsuddin, when addressing a recent conference of senior officers of the Department of Mines in Kuala Lumpur.

He said that the question of whether mining, as a form of land use, should have preference over other claims, would be brought up to the National Land Council. He added that every effort would be made to encourage mining and stabilize the industry.

A reference was made to the aero-magnetic survey made last year, the report of which has not yet been made public. The Minister hoped that, when published, it would stimulate interest in prospecting for tin and other metals, and that it would lead to the beginning of a new era of confidence and prospecting for the mining industry and the country.

The land-starved mining industry may derive some comfort from the following words of the Minister responsible for the utilization of the country's mineral resources: "Development is essential to our future. The first necessary step is to realize that we derive all our wealth from the ways in which we use our land, and that mining is neither more nor less land use than any other form. There is no unbridgeable gulf between mining and other land uses. It is a matter of co-ordination, not competition."

SHAFT SEALING—I.

Shaft Sealing by the Synoplast Method

This is the first of two articles by Carl Hanfland describing the development of new methods in shaft construction, based on the Synoplast special coal-tar pitch.

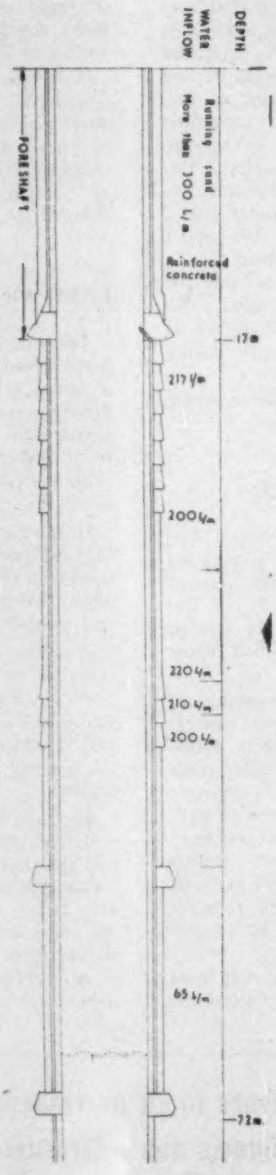
WATER is one of the main problems in shaft sinking and maintenance. Its occurrence in the first place determines choice of the shaft sinking method under the prevailing circumstances. The costs of shaft construction increase very considerably in the presence of water on account of the complication of the mining operations and the measures necessary for keeping the water under control. In shaft sinking, it is very often impossible to keep the water present in the strata completely and continuously under control. A shaft of this type cannot be fully satisfactory. Seepage of aggressive shaft waters leads to a gradual destruction of the shaft reinforcements and installations. Costly and difficult running repairs are necessary, and under these circumstances the useful life of the shaft can only be comparatively short.

Many tests have been carried out with the aim of preventing water seepage. Two suitably spaced brickwork or concrete cylinders were placed one in the other. The intervening gap was then filled with tar concrete or sealed by the cementation method, but the results were unsatisfactory in both cases. First in Russia and then in Holland, filling the spaces with bitumen was tried out. But this did not solve the problem, although the system was developed further with some success in Holland by admixing fillers to the bitumen and so obtaining a sealing compound of very favourable properties.

It is only a short step from the idea of an insulating layer in the shaft body to that of separating the shaft lining from the strata by interposing a slip layer. This brings into discussion a further cardinal problem of shaft construction, i.e. the shaft safety pillar. In the case of a solid connection between strata and shaft body, such as exists in the conventional lining systems, a subsiding strata would exercise great pressures on the lining and destroy it. To prevent this from happening, part of the deposit around the shaft is left untouched and forms the so-called safety pillar. However, since this method leads to the sacrifice of economically important deposits, much thought has been given to the possibilities of overcoming this drawback. The solution of this problem presented itself when substances suitable for shaft insulation were found at the same time to be acting very successfully as sliding media.

Obviously the ideal watertight shaft could only be sunk at normal costs if an insulating material were found which was capable of meeting a variety of demands. Far-reaching chemical stability and very good wetting and adhesive properties were just as important as suitable physical characteristics in order that differences of temperature and mechanical movement might be withstood. It was essential, however, that such properties should not be an impediment for the application of the material as an insulating medium. A compound of this kind was found in the novel coal-tar pitch Synoplast.

The poor resistance to heat and cold of normal coal-tar pitch, which in all cases turned the scales in favour of other bituminous substances if—amongst other properties—comparative insensitivity to changes of temperature was called for, could be eliminated by intensive research work. Today, special pitches are produced by special processes whose plasticity range is equal to that of bitumen. Besides, coal-tar pitch has other much appreciated properties, e.g. resistance to water, aggressive chemicals, bacteria and vegetable growth. That is why these special pitches are primarily suitable for all purposes of protection against corrosion and general protection of all constructional work. For example, in the United States it has for some time been common practice to cover all pipelines in mines and in the oil industry with protective layers of special coal-tar pitch.



The new Dortmund shaft

The First Application

Synoplast was recognized at once as the suitable sealing compound for shafts, and plans for its application in a sinking process were made. First, all technical and economical aspects of such an undertaking were very thoroughly examined and careful tests carried out. The favourable results obtained then prompted the colliery which had placed a contract for sinking a new shaft in Dortmund to agree to an experiment with Synoplast shaft sealing.

The new main shaft, to be sunk to a depth of 730 m. with an inside diameter of 6 m., passed through 175 m. overburden. It was established by means of a small test borehole that appreciable water inflow was only encountered for the first 65 m. and the volume was 2,200 lit./min. The freezing method was therefore not required. In view of the surface conditions, the solid rock was reached by a fore-shaft 17.5 m. deep by the caisson method. This shaft was armoured with an external reinforced-concrete cylinder 70 cm. thick and sealed with an internal brickwork cylinder of 1½ brick thickness.

Subsequently, a further 52.2 m. shaft section was sunk with an internal diameter of 8.12 m. and walled with brickwork 1½ bricks thick. Systematic cement injections helped to reduce the considerable water inflow encountered in this section to admissible amounts not interfering with these operations. This was in the first place very important for carrying out accurate bricking necessary in view of the internal cylinder to

be installed later, and secondly, the costs for pressing out the water were well worth while, because the work could be speeded up considerably and the outlay for pumping operations reduced.

At a depth of 70 m. a brickwork base well anchored in the rock became the support for the internal cylinder of two bricks thickness. As shaft sinking was progressing, this brick support was built up from a wall cradle at a spacing of 15 cm. from the external cylinder. This work had to be carried out very carefully because leakiness in the brickwork would later, when pouring, have allowed the sealing compound to find undesirable outlets. Furthermore, care had to be taken that no foreign bodies contaminated the intermediate gap because this could easily result in sealing imperfections. In spite of all these requirements, the work could be carried out very rapidly with the very satisfactory average performance of 2.5 m.³ brickwork per man and shift.

Method of Filling in Synoplast

The plan was to carry out filling operations in sections: therefore, several window-type filling holes spaced at 8 m. were left open in the internal cylinder brickwork. As experience later showed, one filling hole every 10 m. would have been sufficient. The uppermost window was, of course, provided immediately under the bottom edge of the concrete fore-shaft wall base.

A method for applying the Synoplast compound had first to be devised, because no experience was available. Both the special filling conditions of the compound and the special conditions of this shaft had to be taken into account. The original plan was to transport the hot liquid Synoplast in closed sheet-metal containers of 1.5 cu. m. capacity to the filling holes and then empty them into the gap. This idea was dropped because it could not be guaranteed that the compound would reach the hole at the elevated temperature of 200 deg. C. essential for this method, with its considerable temperature losses.

It was then decided to allow the Synoplast to run from the heat-insulated delivery containers by gravity through down-pipes into the filling holes and so to the sealing joint, and thus to fill this up section by section. This method required a minimum delivery temperature of 170 deg. C., and was successful.

The high temperature of the compound and the heavy tar fumes occurring in pouring made a number of precautionary measures necessary. A movable duct arrangement for fume removal was installed down the shaft to the filling zone. All men were provided with suitable protective clothing, asbestos gloves, neck cloths, and gasmasks. As a further precaution, skin lotions were applied for skin protection.

The 52.50 m. deep sealing joint was filled up in two operations with an interval of one week between them. First, 120 tons of Synoplast were poured in two working shifts and then 80 tons in one shift. The work could be carried out without a hitch except for the disagreeable tar fumes, which could not be removed by the ducting provided. It made work in the shaft without gasmasks impossible, so that subsequent bricking up of the filling holes and shortening of the down-pipes was made very difficult.

After filling, a very serious problem was watertight sealing of the joint with the lower edge of the concrete fore-shaft wall base. Inclined pipes pointing into the sealing gap had been inserted into the wall base, but leakage occurred along the smooth wet concrete surface at that point, caused by contraction of the Synoplast in cooling and by reduced adhesion. This became noticeable as soon as the rising water behind the sealing layer reached this level. The renewed water seepage of 13 lit./min. was not considerable, but made renewed drainage operations necessary, and the leaks had to be eliminated by forcing a weak cement mixture.

Criticism of the Method

Some criticisms are called for as regards planning and the working method of Synoplast sealing in this first application. In the first place, experience showed that the system of pouring the compound through a simple gravity pipeline and so allowing it to fall into the gap from a height of a few metres was a mistake which almost jeopardized the success of the operations. The unavoidable consequences of this procedure are metre-high bubbling and foaming, as well as boiling over of the compound and development of intolerable amounts of tar fumes. For further operations of this kind an improved filling method should, in the first place, be devised, as far as possible eliminating these drawbacks and simplifying and even accelerating filling operations. Secondly, it seems advisable in planning the filling joints to extend them slightly beyond the sections to be sealed in order to obtain safe joints or seals. An obvious solution of the problem seems to be to extend the sealing joint above ground. All difficulties could be overcome in this way.

Summarizing, it can be said that an absolutely watertight seal was obtained with this method of insulating shaft sections against water with Synoplast. Furthermore, on account of the technological properties of the sealing material, this method ensures permanent tightness: a very important point. Thus a long-sought-for economically and technically sound solution of one of the most burning problems of shaft sinking has been provided.

W. Australia's Search for Metals

IN addition to the search for oil, activities of the Bureau of Mineral Resources in Western Australia, carried out in collaboration with the State Geological Survey, have been concerned with the search for metals, particularly uranium.

Airborne surveys for uranium have been carried out in the Carnarvon Basin (concurrently with the airborne search for oil) in the Pilbara area and over a long strip of country between Hall's Creek and Wyndham.

In the Pilbara area particularly, the magnetometer's ability to record slight variations in the earth's magnetic field enabled the airborne survey to make a contribution to the search for deposits of other metallic ores. Results in the Hall's Creek-Wyndham area have led to interest in its possibilities for uranium prospecting. Further airborne surveys for uranium in the north-west are planned for 1959.

Airborne geophysical surveys by the Bureau in the Kalgoorlie-Southern Cross region during the past three years have shown the presence of concealed structures, and should give a new stimulus to prospecting for gold and iron ore. These surveys will be continued in the Norseman area in 1959.

The manganese deposits of the Marble Bar-Nullagina district have this year been the subject of systematic survey by a field party of the Bureau led by an officer of the State Geological Survey. Examination of the deposits has assisted the development of this flourishing section of the mining industry.

Malayan Diary

EARLY in 1952, the Perak Chinese Miners Association, when the activities of Communist terrorists were threatening to disrupt mining in the Kinta Valley, Perak—the world's richest alluvial tin area—was authorized to recruit an all-Chinese military force to protect the lives of the miners, and the mines themselves, operating in the area.

By an arrangement with the Government of the Federation of Malaya, miners enjoying protection were required to contribute towards the cost of maintaining the force, designated the Kinta Valley Home Guard.

Training commenced in May, 1952, and by September of that year the first operational section assumed duty in the Kampar district. In May of the following year, the Kinta Valley Home Guard reached its peak embodied strength of 1,500 men, 50 officers, and 100 N.C.O.s. Since that date improvements in the security situation enabled the numbers to be progressively reduced to 620 men.

The continued success of the campaign against the militant Communists in Malaya no longer renders necessary the maintenance of a special operational force to protect the mines, and disbandment of the Kinta Valley Home Guard commenced on November 30, 1958, and will be completed by the end of the year.

Dato Abdul Razak, the Minister of Defence, addressed a final parade on November 28, when he praised the valuable services rendered by the force, and mentioned that since its formation not a single act of sabotage had occurred on the mines under its protection. In carrying out its duties, the Kinta Valley Home Guard had suffered thirteen killed and twelve wounded.

So passes a unique military force, charged with the special duty of protecting miners.

Tin Exports

Exports of Malayan tin in November amounted to 4,176 tons against 3,564 tons in October. Of the November exports, Argentina took 30 tons; Australia 90; France 105; Italy 170; Japan 699; India 676; South Africa 14; U.S. 2,200; other Commonwealth countries seven; other African countries five; other American countries 73; other Asian countries 96; and other countries in Europe, 11 tons.

Iron From the Malayan Jungle

A $M50,000,000 iron mining project is to be developed in the thick mineral-bearing jungle of South Pahang. The site, on a hill 770 ft. above sea-level, is 110 miles up the twisting Rompin River and then nine miles into deep jungle. The scheme provides for this journey to be reduced to 48 miles by the construction of a railway line through jungle, swamp, and plain, to a long loading jetty to be built at Menchali, near the mouth of the river.

Geological investigations so far undertaken indicate that 17,000,000 tons of high-grade iron ore is available in the area.

The new mine will be worked by the Rompin Mining Company, a subsidiary of the Eastern Mining and Metals Co. Ltd., which owns Malaya's present largest iron-ore mine at Dungun in Trengganu.

The development of the Pahang ore-bed is being undertaken because it is anticipated that the output of the Dungun mines will be substantially reduced as from 1962.

Preliminary constructional works at Rompin are estimated to take about three and a half years to complete, and the mine is expected to enter the production stage in 1964. In its first working year, the company expects to export 800,000 tons of iron ore; in its second year, 1,500,000 tons; and then, if demand requires it, 2,000,000 tons annually.

The Dungun mines exported to Japan 2,250,000 tons in the current year. Long-term contracts for purchase of iron ore from the new company are under negotiation in Japan, and for that country to supply $M10,000,000 worth of steel, plant, and railway equipment.

$M2,500,000 has already been spent on the geological and mineral investigations. Mining leases for 21 years have been obtained over 3,000 acres, and prospecting licences and permits cover a further 30,000 acres.

International Trade Fair in Czechoslovakia

THE Czechoslovak national economy is characterized by a steady upward trend in development, while industrial output has trebled in recent years in comparison with 1957. This expansion of the production basis has manifested itself also in foreign trade, which in the past decade has increased approximately twofold.

To promote their foreign trade, the Czechoslovak foreign trade corporations participate in trade fairs and exhibitions in all parts of the world. In 1957 alone, Czechoslovakia took part in twenty-eight displays, twenty-three trade fairs, and five exhibitions.

The last trade fair organized in Czechoslovakia was that in 1951, while a new one will be held next year from September 6 to 20. It will not be in Prague, but at Brno, an important industrial centre and the second largest city of Czechoslovakia, where an up-to-date exhibition ground with many pavilions and halls, and which covers a total covered area of 65,000 sq. m., has been laid out.

The centre of gravity of the First Brno Trade Fair will be engineering and metallurgical products, and raw materials and semi-manufactures related to this sector. The groups of exhibits will comprise both products of the heavy and light industries and some engineering products of a consumer character. They will include diesel engines and diesel sets, pumps, machine tools, electric time-measuring equipment, all types of equipment for the chemical industry, compressors, industrial lighting equipment, precision instruments, gauges and measuring instruments, specialized and laboratory instruments, raw materials and semi-manufactures related to metallurgical and engineering production, welding machines, projectors, optical instruments, air-conditioning equipment, anti-friction bearings, and numerous other products.

As regards the method of display, in principle this will be effected in individual groups, while naturally it is not improbable there will be collective displays of several groups together. Commercial activities will be effected according to the usage customary at trade fairs, without restrictions of any sort. As regards commercial contacts with the Czechoslovak foreign trade corporations, however, it is necessary for foreign participants at the fairs to note that their trade partners are the foreign trade corporations, and not the manufacturing plants and factories.

NUCLEAR RAW MATERIALS—IV

The Search for More Uranium

Geneva papers dealing with uranium resources in various countries, including reports on discoveries and exploration programmes, were briefly reviewed in previous articles in this series. The following and concluding article describes the methods used throughout the world to determine and win uranium.

PRODUCTION from known uranium deposits may eventually total 2,000,000 tons of uranium oxide, and the immediate marketing problem of the industry as a whole is one of oversupply. Consequently much of the aggressiveness has deserted the exploration programmes of the major producers, and several papers at Geneva commented on the difficulties of planning uranium mining development programmes with inadequate data on possible future demand. However, if it is not all jam today for the uranium industry, there were several unqualified assertions at Geneva that demand will increase about 1965 as nuclear power programmes get under way.

Almost all present uranium production is covered by contracts with the Atomic Energy Commissions of the great powers, and there have been recent instances of the granting of new contracts (in Australia) and the refusal of others (in South Africa). The apparent inconsistencies in the sponsorship of uranium development by the U.K. and U.S.A. has undoubtedly braked the exploration effort in the larger producing countries. Elsewhere, however, the search for uranium is being energetically continued. This applies even to the U.K., which is engaged in an aerial scintillometer survey of Cornwall and the drilling of uranium-bearing lodes. As has been frequently mentioned in the columns of *The Mining Journal*, the United Kingdom has seldom displayed any great interest at government level in the exploitation of her mineral resources of other metals whilst her requirements of these are readily satisfied from overseas.

Geological Distribution of Uranium

When intensive exploration for uranium was first begun, it was considered that vein-type hydrothermal deposits offered the best possibility for large-scale production. When the uranium content of the South African gold mines came to light, the deposits were considered unique and economic uranium recovery from deposits of that type was thought possible only as a by-product. Today about 90 per cent of all reported uranium reserves are in sedimentary rocks ranging in age from the pre-Cambrian conglomerates of South Africa and Canada to the late Tertiary sandstones of the United States.

In Canada, uranium is being produced from high-grade pitchblende-bearing hydrothermal veins such as those of the Eldorado Mine at Great Bear Lake and at Beaverlodge. In the Bancroft region uranium-bearing pegmatitic granite is being worked, whilst the conglomerates of Blind River are rapidly becoming the greatest source of Canadian uranium.

Distribution of Canadian uranium reserves between these three geological types of deposit (and those closely related types not yet worked) have been tabulated as follows:

Summary of Uranium Reserves (s.tons)

Type	*Measured*	*Indicated*	*Inferred*	*Totals*
Conglomeratic	31,300,000	279,200,000	45,200,000	355,700,000
Pegmatitic ...	300,000	9,600,000	980,000	10,880,000
Veins and related deposits ...	180,000	10,100,000	28,000	10,308,000
Totals ...	31,780,000	298,900,000	46,208,000	376,888,000

Measured (or proved ore) is well-established ore which has been closely inspected and sampled. Indicated (or probable) ore has been incompletely established by wide-spaced measurement and sampling, whilst inferred (or possible) ore reserves are based largely on geological evidence. The uranium content of the conglomeratic and pegmatitic ores is about 0.1 per cent U_3O_8, and the pitchblende veins and related deposits average about 0.2 per cent.

Despite the vast increase in uranium reserves in pre-Cambrian conglomerates which has taken place since the first Geneva Conference, these conglomeratic deposits now represent only 60 per cent of known reserves of low-cost uranium in countries other than the U.S.S.R. In 1955, approximately 75 per cent of known uranium was to be found in conglomerates, whilst Mesozoic sediments accounted for 15 per cent of the remainder. Vein or vein-type deposits in igneous and metamorphic rocks comprised 10 per cent. In the intervening three years, despite the large increase in total reserves, the relative importance of vein-type deposits has been maintained, and they still account for 10 per cent of known reserves. The decline in the relative importance of conglomerates is attributable to the increase in the proportion of reserves in Tertiary sediments, which has expanded the total for sedimentary rocks from the 15 per cent mentioned above to 30 per cent. Because of the widespread occurrence of uranium deposits in sedimentary rocks and the large areas of such sediments still unexplored, it is thought probable that this type of deposit will continue to grow in relative importance and provide the most important source of new reserves.

Uranium Ore Deposition

Several new or changing concepts in the geology of uranium deposits have evolved during the rapid expansion of the uranium industry. Earlier emphasis on observed facts concerning the geologic associations, distribution and classification of uranium deposits has resulted in the amassing of a large quantity of data and information. During the last three years the emphasis has switched to the analysis and interpretation of these data, and marked progress has recently been made in inferring new concepts of the processes of uranium deposition. Study has shown that variation among magmas in different provinces, as reflected in igneous rocks, is accompanied by significant variation in uranium content of the magma. The data so far obtained hints at a means of determining global uranium distribution. The concept that uranium occurs in zonal arrangement in relation to other metal mines, and that it must be sought outside the metal mining districts, has been inferred in a number of mining districts throughout the world and is the subject of detailed study at present in the U.S.A.

Much effort in recent years in the U.S.A. has gone into the study of the role of organic substances in host rocks in the precipitation of uranium. Amongst carbonaceous materials, solid humic matter and humic oxides are believed to be very important in the geochemical cycle of uranium. The establishment of relationships between uranium-bearing solutions and natural gas have underlined the significance of natural gases, and the structures that trap them, as ore-localizing factors in areas where uranium-bearing ground waters are circulating.

Isotopic Data

Isotopic data on certain elements may be used in several ways to gain information on both the occurrence and origin of uranium ores.

The favourableness of an area for uranium may be predictable from lead isotope studies, which would be especially useful as a tool for geochemical prospecting in the absence of detectable anomalous radioactivity. The accumulation of radiogenic lead in pyrite in uranium deposits has been demonstrated, and lead isotope analysis might also be extended to include other minerals.

Extensive published data on C^{12}/C^{13} ratios of various organic materials can provide insight into the origin of uraniferous carbonaceous material in sedimentary type deposits. In two important deposits in the western United States an organo-uranium complex is associated with fossil plant debris, crude oil, and petroliferous residues. Carbon isotope analysis of the various carbonaceous materials in these deposits may furnish further evidence to indicate the genesis of the organic fraction of the ore.

Instrument Aids in the Search for Uranium

The development of Geiger-Muller and scintillation counter ratemeters employing transistor circuit techniques has been maintained since the time of the first Geneva Conference, and several lightweight, robust and portable ratemeters are in commercial production.

Ratemeters employing transistors have shown a marked improvement in reliability over earlier instruments and permit more economical use of battery power. The use of transistors has not significantly decreased the overall size and weight of the instruments, these features being mainly governed by other components. Nevertheless, two instruments commercially available in the U.K. weigh less than 4 lb. and have an operational life of over 500 hours before battery renewal is required. Both beta- and gamma-sensitive versions of these instruments are available. More comprehensive ratemeters weighing between 8 lb. and 9 lb. have been designed for detailed survey work, borehole logging and for preliminary assay in the field. Such instruments are provided with aural indication of counter operation and an output socket to which a suitable recorder can be connected. An external indication of humidity conditions within the instrument case is an added refinement.

Ground follow-up of radioactive anomalies discovered from the air has shown a large number to be due to thorium mineralization, and investigation of a gamma energy technique to discriminate between uranium, thorium and potassium is proceeding at Harwell.

Two borehole logging equipments are now in production in the U.K. and a third is under development. A detailed comparison of these instruments and their performance with G-M and scintillometer probes has shown that, by virtue of its shorter sensitive length and greater gamma efficiency, the scintillometer probe gives much higher definition. Whilst the G-M probe is suitable for logging holes intersecting ore, the scintillometer would be used for investigating the small changes in radioactivity associated with changes in strata.

A comparison of American techniques of multi-purpose logging discloses that the methods of greatest promise are single-point electric logging, combined electric and gamma logging, multi-electrode resistivity and caliper logging. Caliper logs are obtained using probes with spring-loaded arms and continuously recording the borehole diameter on an electric log recorder. Such logs are required for the quantitative interpretation of other types of log, and can disclose fractured and friable zones which may be linked to ore deposition.

Drilling for Uranium

Exploration drilling for uranium provides rock chips or cores which can be analysed for uranium, and drill-holes in which the gamma radioactivity of the disintegration products of uranium in the adjacent rock can be measured.

The difficulty with exploration drilling is that the information obtained from the core refers only to the rock column penetrated by drill and the gamma-ray log extends this information to a cylinder of rock only a few feet in diameter. To assure the discovery of a uranium orebody, the drill-hole spacing must be kept small with a resulting high cost of exploration. A means of extending the volume throughout which information might be obtained by a drill-hole was described in a United States paper. It is proposed that the presence of anomalously high concentrations of radon in drill-holes may be used as presumptive evidence of uranium concentrations. General fracturing or high permeability of the ore horizon must be present and the horizon must lie above the water table. It has been established that under these conditions radon can migrate some distance from an orebody and can be detected in a borehole by ionization chamber methods.

U.S. Miners Press Claims

WITH Western European coal industries in a turmoil due to rising stocks and short-time working, John L. Lewis, president of the U.S. Union of Mineworkers, would appear to have chosen an inauspicious moment to press union claims for better pay and conditions for close on 200,000 miners in the hard and soft coal industries. Falling markets in Europe are expected to result in a drop of 15,000,000 tons alone in imports of United States coal this year, and indeed the industry is likely to export very much less than the 85,000,000 tons sold abroad last year.

It is two years since the U.M.W. put in its last major claim, which raised the miners' basic daily wage to $22.25. The chief points at issue are believed to be: a union demand that coal producers refuse to market non-union coal; higher royalty payments towards pension funds; and better holiday payments. The chief stumbling-block is apparently the union demand that coal producers refuse to handle coal from non-union mines. This demand is strongly resisted by a powerful section of the Coal Operators' Association—many of whose members handle sizeable tonnages of non-union coal along with that produced at their own mines.

Settlement of this problem would probably pave the way for a quick agreement on wages despite a continued recession in the coal-mining industry. Failure to reach agreement will mean the miners coming out on strike on February 1 next year at the end of the contract 60 days' strike notice.

Machinery and Equipment

Car Loading Chutes in High Speed Haulage

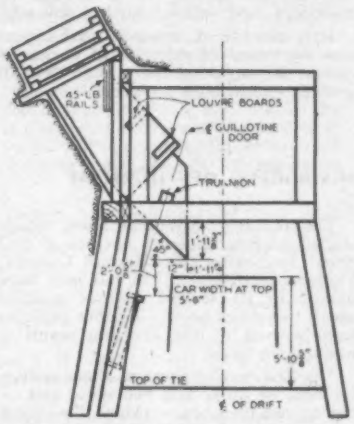
At the San Manuel copper mine in Arizona, the main phases in transportation are loading, travelling and dumping, the trains being loaded against the track grade to take the slack out of the couplings and so facilitate the manual spotting of the cars under the loading chute, which is indicated by hand-operated signal lights.

The chutes, almost free of ground support, are installed on trunnions supported by the two caps of adjacent drift sets. The undercut guillotine door is operated by an 8 in. dia. air cylinder with a 36 in. stroke, passing through a slot in the bottom of the chute and held in guides at each side. The door has ¾ in. by 2 in. by 36 in. extensions to prevent the guides from being choked with muck. Cylinder and door guides are supported by an H-beam and angle iron which is bolted to the bottom of the chute slide. With its 35 in. by 39 in. opening, this type of chute gives maximum freedom from choking and eliminates much of the barring or blasting clear of the chute mouth. The positive undercut action of the door also minimizes the possibility of a boulder jamming the chute door open.

The mine cars are dumped three at a time in a 180 deg. rotary tipple. With this system, together with two powerful hoists, 13,124 tons can be raised in a single shift, or 35,321 tons in three shifts.

HUNGARIAN COAL LOADER

A new mining machine of some international interest now being produced by the Dimávag works in Hungary is the Hidasi chain-loader. This was invented by István Hidasi, director of the Central Danubian Coalmining Trust, weighs about two tons, and can, it is claimed, load about 30 tons an hour.



Easy assembly in the mines was one of the chief considerations in production. The loader consists of three main parts: the chain-loader with plough and conveyor belt; a caterpillar track mounting; and the extension boom with rubber belt.

Above, the car loading chute construction used at San Manuel, and below, the Hidasi coal loader

The loading device consists of a driving motor serving the loading chains, the runway and the take-up unit of the loading chains, as well as the plough and the driving gear and metal structure of the stockpile rubber conveyor belt.

The loading chains and the stockpile belt are driven from the same motor through a countershaft. The mechanical data of the drive are as follows: Special electric motor of 7 kW. output, 1,440 r.p.m., with short-circuited rotor. The countershaft revolves at 137 r.p.m. The loading chains are driven from the countershaft by bevel gears. Revolutions per min. of the sprocket shaft is 95. The loading chain is a special forged cutting chain with 60 mm. unit intervals with a speed of 0.6 m. per sec.

The drum of the stockpile conveyor rubber belt is driven from the countershaft by spur gears. Drum r.p.m. is 25 and drum diameter 210 mm., giving a rubber belt speed of 825 m. per sec. Width of the rubber belt is 350 mm.

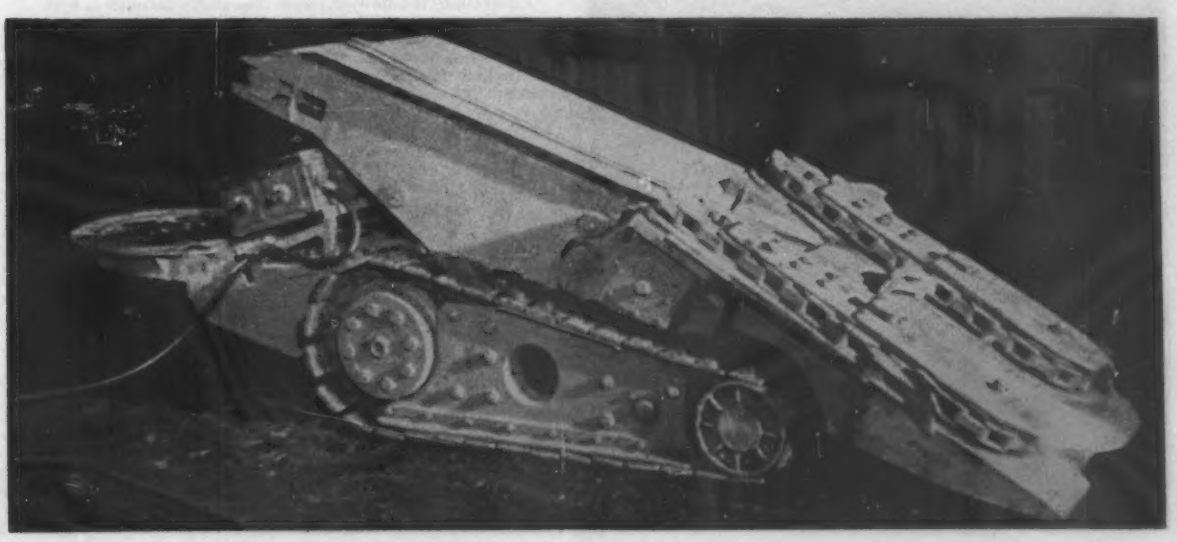
Caterpillar mounting includes holders for the loading device, supporting structure of the running gear, and driving motor of the chain track running gear.

The chain tracks are driven on each side by a separate electric motor, each of 2.3 h.p. developing 960 r.p.m. Forward speed of the machine is 0.067 m. per sec., or 4 m. per min.

The weight of the machine is approximately 2,000 kg..; taking the adhesion friction as 0.6, the adhesion tractive effort of the whole machine does not surpass 1,200 kg.

The chain tracks are 170 mm. wide, and the total area of the machine's bearing is 0.34 sq. m., giving a surface pressure of about 0.6 kg. per sq. cm., which means that the machine can operate on quite weak soil.

Support of the belt is provided from the underframe of the caterpillar through a backwards-reaching cantilever. The rubber belt can be swivelled round a



vertical axis to the right and left over 90 deg., which means that the machine can load also in a perpendicular direction to its longitudinal access. Height of loading can be set to 580, 750, 850, 1,000, 1,100, and 1,200 mm.

ELECTRIC WHEELS ON BOWL SCRAPERS

It will be recalled that the LeTourneau electric wheel was described in a recent issue of *The Mining Journal*. Latest news from the United States is that this device is now fitted to the Goliath bowl scrapers produced by the manufacturers. Two bowl scrapers have been produced, a 70-ton machine and a 125-ton unit. Each wheel is driven by an electric motor geared directly to the inner rim. Power is supplied by 600 h.p. diesel-electric motors.

CHEMICALS IN TUNNELLING

The use of chemicals to solidify a layer of quicksand encountered during an unusual tunnelling operation at an open-cast iron-ore mine in Minnesota is described in a United States Bureau of Mines report.

A 22 ft. thick bed of fine, water-filled sand halted tunnelling at Tioga No. 2 Mine, near Grand Rapids, Minn., where an opening was being driven to house a conveyor belt for carrying ore from the bottom of the pit to the surface.

Tunnelling, which was proceeding from both ends, became impossible when the sand layer was reached. The chemical solidification method, called the Joosten process after the Netherlands engineer who developed it, was employed when the conventional technique of grouting with cement failed.

Solutions of sodium silicate and calcium chloride were pumped through carefully placed pipes into the sand layer. According to the report, these two solutions, on meeting, formed a gel which cemented the sand particles together and eliminated the water problem. The tunnel then was driven 178 ft. through the stabilized sand without further difficulty.

It is considered, however, that operation by means of injection of chemicals cannot be regarded as a cure for all ground stabilization problems.

SEA-BORING OFF DURHAM

The N.C.B.'s sea-boring tower which started proving undersea reserves of coal about four miles off Blackhall Colliery, Durham, in August, 1958, has now been moved to its second drilling position about two miles north. Further exploratory proving of the undersea seams is now taking place.

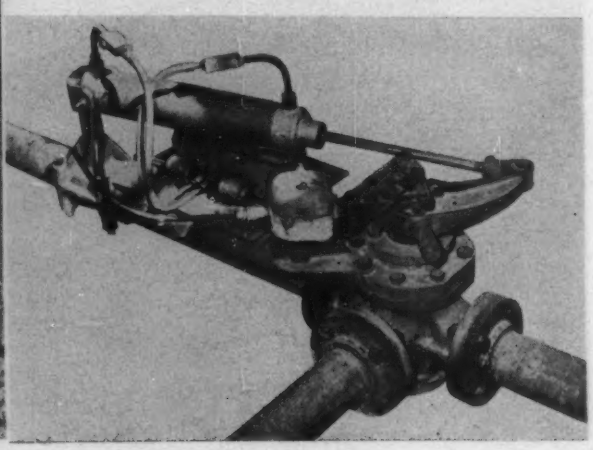
The first borehole was in about sixteen fathoms of water and two miles east of the nearest undersea workings, the object being to provide additional information about the thickness and quality of the seams it is intended to mine from Blackhall and Horden Collieries. There had been doubts as to how far the coalfield extended southwards and eastwards under the seabed, as there was evidence that inland the coal-bearing rocks ceased to exist within a few miles south of Blackhall Colliery. More knowledge was also needed about the nature of the limestone rocks which overlay the coal-bearing rocks in this locality, as these are waterbearing, a factor which reduces the total amount of coal that it is possible to take from a given area.

The boring operations were very successful, and an average depth of 29 ft. a day was obtained, a rate which compares favourably with boring on land. The seam thicknesses established included the High Main at 3 ft. 6 in., the Main Coal at 2 ft. 10 in., the Low Main at 3 ft. 7 in. and the Harvey at 2 ft. 8 in.

These indicate that the coal seams extend at least as far as expected and maintain their thickness and quality. It was also discovered that a great thickness of nearly 400 ft. of the mineral anhydrite, which is non-porous, overlies part of the coal-bearing rocks. This affords increased protection from the water-bearing limestone and therefore extends the areas of workable coal.

In addition to the coal seams which were expected to occur, a number of deeper seams such as the Busty and the Brockwell, which have been worked far to the west at Fishburn and Dean and Chapter collieries, have been proved to be of workable thickness in the undersea area, though they are not workable inland for about ten miles west of the coastline. These seams contain high-grade coal, and with further proving they may add additional and hitherto unexpected reserves to those already accessible from the workings of Blackhall Colliery.

The first borehole was drilled to a depth of 2,100 ft. It is expected that the second will have to be driven deeper than this to obtain the full succession of the seams.



A method of producing an inexpensive and durable jointless floor covering for commercial vehicles has been perfected by Tom Byatt (Engineers) Ltd. Based on polyester resin made by Bakelite Ltd., the new flooring surface, which has been passed by the Board of Trade for use in calibrated bodies, will successfully withstand the damaging effects of heavy and abrasive materials such as coal, coke and granite. It is shown in trucking application at left. Below, a new range of cylinder-operated valves has been introduced by Maxam Power Ltd., Camborne, Cornwall, designed to ensure positive movement of the valve member under extremes of operating conditions. They are single or double cylinder-operated, 2-way, 3-way or 4-way valves of $\frac{1}{16}$ in. and $\frac{1}{4}$ in. sizes. Controlling the flow of china clay slurry through a 6 in. pipeline from settling tanks to the filter presses a Maxam 4 in. bore double-acting air cylinder which operates a Tee Port Valve in the pipeline, is shown. Situated below the air cylinder is the Maxam control valve

MINING MISCELLANY

At the annual general meeting of the Géomines Co., the chairman of the board, Mr. M. A. Guillaume, stated that when the new Kahungwe plant, now being installed, was completed, Géomines' production capacity of cassiterite would reach 5,000 tons per year. Present production capacity was 4,000 tons of cassiterite annually. Reserves of ore allowed of exploitation until the end of the concession, which, unless it was renewed, would expire in 1990, he said.

*

Exports of Israeli potash during the current year will reach the figure of $3,500,000. The Director-General of the Dead Sea Works, Mr. M. Makleff, said that export orders for December, 1958, alone totalled 18,500 tons, valued at $700,000. This year's orders included a 10,000-ton supply to Formosa, despite some rather stiff competition with other countries. Potash production will reach the record figure of 110,000 tons this year. Next month, an additional 4 sq. km. of evaporation pans will be flooded, bringing the total to 27 sq. km., and raising the output of this plant by about 40,000 tons per annum.

*

Eire mining engineers, geologists, and others connected with the mining industry have formed a provisional committee to draw up proposals for the formation of a mining and geological association. A meeting held in Dublin was presided over by Mr. C. P. Blair, of Gypsum Industries Ltd. A further meeting is to be held on January 13.

*

Mining of emeralds from the Belingwe, Southern Rhodesia, claims is to start at the end of December. Machinery is now being installed. The partners, Mr. C. J. Oosthuizen and Mr. L. J. Contat, say that their policy now, and even when the mine is under full production, will be to operate the workings solely by themselves. The emerald field is situated at Sandewana among the Mweza hills, 40 miles from the nearest road.

*

Turkey will produce over 7,000,000 tons of coal this year, compared with 6,126,700 tons last year and 4,181,000 tons in 1950.

*

The Institution of Mining and Metallurgy is to make grants in 1959 from the Bosworth Smith Trust Funds to assist post-graduate research in metalliferous mining (excluding mineral dressing, but including surveying and geophysical prospecting). Projects may be supported for more than one year. Applicants for grants should write for an application form to the secretary, the Institution of Mining and Metallurgy, 44 Portland Place, London, W.1, before February 28, 1959.

*

Initial success at the copper works in Timna, in the Southern Negev, is reported by sources close to the Ministry of Development. The start of activities proceeds under favourable conditions and at a much quicker rate than anticipated. At present, the enterprise is already operating at 50 per cent of its productive capacity, although the production process has not yet been finally determined, and the extent of production costs cannot therefore be gauged. On the other hand, it is already clear that less sulphuric acid than estimated will be required for the production of copper which will considerably reduce manufacturing costs. If the price of electrolytic copper on the international market (reaching $670 per ton) is to stay, the Timna works will be able to cover expenses. It is expected that during the first quarter of 1959 the works will be in a position to operate steadily, whereupon a permanent manager will be appointed.

*

Turkey has completed the civil engineering of her new electrolytic copper plant, and the installation of the machinery and equipment has begun. It is expected that the plant—which will have an annual output capacity of some 4,000 tonnes—will begin operating early next year. It is also anticipated that the plant's production will cover Turkey's requirements for electrolytic copper.

*

Plans for changes in the organization of the mining and power industries in Poland have recently been submitted to the Council of Ministers for approval. The object is to increase the independence of the production enterprises, with a corresponding decrease in the control exercised by the Ministry of Mining and Electric Power. As a result of the new programme, the number of mining and power enterprises will be cut from 319 to 158. The coal industry combines are not to be changed by this plan. Seven combines for hard-coal production will remain, as will one combine for brown coal.

*

Richard Costain (Africa) are to build Lonrho House in Salisbury, Southern Rhodesia. The building will cost over £200,000 and is scheduled for completion by January 1, 1960.

*

Agreement "in principle" has been reached between Spain and Miferma (Société de Mines de Fer de Mauretanie) whereby a 600 km. railway linking Miferma's iron ore deposits at Fort Gouraud in Mauretania (French West Africa) with Port Etienne should run across the Spanish territory of Rio de Oro. Talks are in progress to decide what transit fees should be paid to Spain. This agreement has removed one of the major obstacles to the working of the deposits, which are estimated to contain 100,000,000 tons of ore assaying 63 to 67 per cent iron.

*

A concentrator with an annual capacity of 36,000,000 tons of iron ore is to be built in the Kustanai region of Kazakhstan. The plant will process the brown haematite which has been discovered in the region. Reserves of ore are estimated at thousands of millions of tons and lie close to the surface.

*

After 1965, exports of iron ore from Angola will reach a value of more than 3,000,000,000 escudos, according to the managing director of the Companhia Mineira de Lobito and of the Sociedade Mineral de Lombije. During the first phase, which will last until 1965, the two companies will export 1,500,000 tons through the port of Mocamedes and 500,000 tons through the port of Lobito, on the Benguela Railway. During the second phase, beginning in 1965, ore exports will reach 10,000,000 tons annually.

*

The South African Council for Scientific and Industrial Research states that investigations of clay deposits in the Union carried out by its National Chemical Research Laboratory have indicated that the Union will be able to mine all the high-grade kaolin it requires and have a surplus for export. Until a few years ago, it was generally believed that South Africa had few high-grade kaolin deposits, and most of its requirements were imported. Recently, the National Chemical Research Laboratory investigated the possibilities of kaolin deposits at Bitterfontein and Kuif's River. The Bitterfontein deposits seem to be of exceptional importance.

*

Iron ore deposits amounting to tens of millions of tons have been discovered in the Altai area by geologists of the West Siberian Geological Administration. They will be sufficient to provide raw materials for an iron and steel mill now under construction in Siberia.

*

With the object of encouraging big mining companies in South Africa and abroad to establish themselves in Nyasaland, the Territorial Government has formed a mineral investigation section. The department will examine mineral deposits throughout the territory and obtain quantitative figures which it will present to mining concerns for study, thus saving the companies time and expense in exploring the areas for themselves.

*

One of the four biggest producers of chrome in Southern Rhodesia, Mapanzui Chrome Mines (Pvt.) Ltd., has exercised an option to mine chrome in the Belingwe Native Reserve. According to the *Rhodesia Herald*, the price paid was in the region of £40,000. The company has already invested a further £30,000 in development work and plans to spend £50,000 more to bring the mine into production. It is hoped eventually to produce a steady 3,000 to 4,000 tons a month.

*

A report from Stockholm states that the Alfa-Laval group of companies has received an order for a large number of plate heat exchangers for the new aluminium plant in Guinea (formerly French Guinea). The plate heat exchangers will be of entirely novel design, and it is claimed that they will be the largest of their type.

*

The Eire Government is considering a proposal to make available more money for mineral exploration, and it is considered likely that the additional finance will be forthcoming. Some £80,000 has already been allocated by the Government for a scheme of exploration in the Leinster and Connaught coalfields, and a start is soon to be made on this work.

*

Three Russian scientists recently visited the Consolidated Denison and Can-Met uranium mines at Elliot Lake,

Ontario. Two of them, S. N. Voloshchuk and N. Karpov, are geologists, graduates of Moscow's School of Mines. The other is Mrs. N. Sobinjakova, a graduate of the Chemical and Technical Institute in Moscow. This was in the nature of a return visit, following a tour of some Russian uranium mines earlier this year by Mr. Stephen B. Roman, president of Consolidated Denison and Can-Met.

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The 1958 edition of the *Canadian Mining Manual*, a standard reference book for the mining industry, has just been issued. It is published by National Business Publications Ltd., and is available on order from the following address: Canadian Mining Manual, c/o National Business Publications Ltd., Gardenvale, Quebec, Canada.

★

The value of exports for 1958 from Bolivia has been put at $U.S.55,000,000, as against $U.S.100,000,000 in 1956 and $U.S.88,500,000 in 1957. The net revenue from exports is put at $35,000,000 this year, a decline of nearly 50 per cent from 1956.

PERSONAL

Mr. J. Pryor has been appointed representative in New York of the Midland Bank in succession to Mr. J. E. T. English.

★

Mr. R. Menzies, senior personnel officer with the Roan Antelope Copper Mine, Northern Rhodesia, is now in Britain on a 14-week tour of industry, commerce, and social organizations. The tour is arranged by the overseas department of the Industrial Welfare Society. Mr. Menzies has spent two weeks attached to the National Coal Board, first in London and then at Doncaster, studying management development plans and industrial relations policy at national, divisional, and area level.

★

Mr. K. Tardif, publicity manager of G. A. Harvey and Co. (London) Ltd., has recently been appointed home sales manager. Mr. H. Barker, formerly deputy sales manager of the same company, has been appointed export sales manager, and Mr. H. F. Jones becomes London area manager, controlling the company's London sales office.

★

Mr. A. Carr, assistant managing director of Thos. W. Ward Ltd., of Sheffield, has been named deputy chairman of the company. Also announced is the appointment of Mr. D. F. Walton as a director of Thos. W. Ward Ltd.

★

Hadfields Ltd. of Sheffield, have appointed three directors to the board. They are Mr. F. Cousans, F.I.M., Mr. G. Wood, A.Met., A.I.M., and Mr. R. C. Heys.

★

Mr. F. L. Gibson has been appointed sales manager for the home market for Wolf Electric Tools Ltd.

★

Mr. W. F. Ritchie, until recently chief engineer of the Consolidated Pneumatic Tool Co., at Fraserburgh, has been appointed manager of factory operations.

★

Mr. W. Barr, honorary treasurer of the Iron and Steel Institute since 1953, has been nominated by the council for election as president of the institute for the 1959-60 session. He will take office at the general meeting on May 6, 1959.

The United Kingdom Atomic Energy Authority have appointed Mr. L. Grainger, B.Sc., A.M.Inst.Met., as head of the Metallurgy Division of the Authority's Research Group at Harwell. He is to succeed Dr. H. M. Finniston, B.Sc., Ph.D., A.R.I.C., who is being released by agreement to take up appointment with the Nuclear Power Plant Co.

★

The responsibility for all foreign operations (except Robins Conveyors (South Africa) Ltd.) of Hewitt-Robins Inc., Connecticut, U.S., has been transferred to Mr. J. J. Sheehan.

★

Mr. K. A. Hogan, a director of Powell Duffryn, of Stephenson Clarke, and other companies in the Powell Duffryn group, will be relinquishing these directorships with effect from the end of March, 1959, in order to take up another appointment. His advice will, however, continue to be available to the group.

CONFERENCES AND EXHIBITIONS

The next general meeting of the North Staffordshire Institute of Mining Engineers will be held on January 5 at 5.30 p.m. in the North Staffordshire Technical College.

★

Manchester Geological and Mining Society: Wigan (Mining and Technical College), Thursday, January 8, 1959, at 3.30 p.m., "A New Approach to the Estimation of Mining Subsidence," by J. E. Marr, Assoc.M.I.Min.E. The Midland Counties Institution of Engineers: Mansfield (Mines Rescue Station), Wednesday, December 10, 1958, at 6.30 p.m., "The Dowty 'Roofmaster' Powered-support System: Development and Early Experiences," by D. Francis, B.Eng.(Min.), Assoc.M.I.Min.E., and H. Aram, B.Eng.(Min.), Assoc.M.I.Min.E.; Nottingham (The University), Wednesday, January 21, 1959, at 6.30 p.m., "Underground Transport of the Injured," by A. Allan, M.B., Ch.B., D.P.H.

COMPANY EVENTS

Mine Safety Appliances Co. Ltd., Queenslie Industrial Estate, Glasgow, the British subsidiary of the Mine Safety Appliances Co., of Pittsburgh, Pennsylvania, held an exhibition recently in London of some of their products. The company in Scotland has, in the last 11 years, extended its range of products to include 60 items of the 3,600 produced in the American factory. With the ultimate intention of producing all the products made by the parent company, further expansion of their range is envisaged in the near future. Among these products are electric cap lamps, breathing apparatus, miners' helmets, goggles, dust masks, toxic gas detectors, methane testers, and underground notice boards.

★

Chaseside Engineering Co. Ltd. are to merge with British Northrup Ltd., in order to take advantage of modern and large resources ideally suited to their joint development. The latest range of Chaseside construction equipment includes the Loadmaster 3000, the first "giant" British-built and designed four-wheel-drive loading shovel in its class. Mr. G. L. G. Jackson remains as managing director and also becomes managing director of British Northrup Ltd. Mr. G. H. Jackson is resigning as chairman of Chaseside.

A new belting symbol has been introduced for the range of Turners conveyor and transmission belts. The "T" symbol is distinctive, for the downstroke is a conveyor belt section and the cross-sectional piece represents a "V" belt. All the belting products of Turner Bros. Asbestos Co. Ltd. will be marketed under this brand.

★

Dow Chemical Co., Michigan, U.S., and United States Borax and Chemical Corporation are to launch a joint research project to find an economical process for making boron trichloride. United States Borax, with headquarters in Los Angeles, is a large producer of borate products, and Dow produces chlorine, both of which are basic materials for boron trichloride.

★

The board of the newly formed company, Birlec-Efco (Melting) Ltd., comprises Mr. G. P. Tinker (chairman), Mr. J. C. Howard (managing director), Mr. F. S. Leigh (assistant managing director), Mr. D. L. Campbell, Mr. J. H. Crossley, Mr. P. F. Hancock, Mr. J. A. Monks, and Mr. T. G. Tanner. The secretary of the company will be Mr. J. C. Mantell. The company has been formed by Birlec Ltd. and Efco Ltd. for the design and supply of all types of electric melting furnaces. Its offices are at Westgate, Alridge, Staffs.

★

The head offices of Aluminium Ltd., its major subsidiary, Aluminum Co. of Canada Ltd., and of several other associated companies, will be located in the projected Place Villemarie cruciform building in Montreal, Canada, some time after completion of the building in 1961. An agreement has been negotiated on behalf of Aluminium Ltd. group of companies, whereby an "Aluminium Centre" will be created in the 42-storey tower, the exterior facing of which is to be constructed exclusively of aluminium and glass.

CONTRACTS AND TENDERS

Formosa

Two electric motors for mine hoist, 440 v., 3 phase, 60 cycles, and two complete sets of starting equipment plus spare parts. Three distribution transformers (3.3 kV.) plus one lot of spare parts. Two air compressors for mine pneumatic tools with motors and one set of spare parts. Six air leg rock-drilling machines and spare parts. Project Implementation Order No. 84-21-455-9-80384. Invitation No. US-509-B. Issuing authority and address to which bids should be sent: Central Trust of China, Purchasing Department, 68 Yen Ping Nan Road, Taipei, Taiwan (Formosa). Closing date: January 6, 1959. Ref. E.S.B. 30284/58 I.C.A. Telephone inquiries to Chancery 4411, extension 354.

★

Head Wrightson Stockton Forge Ltd., a subsidiary of Head Wrightson and Co. Ltd., have recently received an order from Titania A/S, in Norway, for the supply of a special type Class H.18 rotary dryer, 104 in. x 70 ft. long. The dryer is to be used for the drying of ilmenite in a new titanium ore concentrates plant to be located at Telnes, in south-west Norway, a few miles from Joessing Fjord. Similar machines have been supplied by Head Wrightson in the past to Norway for drying duties in iron ore concentrate plants.

Metals and Minerals

The Nickel Industry in 1958

The year was marked by dramatic changes in the nickel industry, writes Dr. John F. Thompson, chairman of International Nickel, in his annual review of the industry in 1958. It was highlighted by abundant supplies of nickel throughout the Free World for both civilian and military purposes, as well as by vigorous competition for new markets.

Total nickel consumption in the Free World during 1958 is expected to be between 162,500 and 167,500 s.tons, compared with about 207,500 s.tons in the previous year. The principal cause of the decrease was the business recession in the United States and Canada, which had a particularly strong effect upon the production of durable goods. Because this coincided with a period of heavy inventory liquidation by consumers, nickel deliveries in all forms were appreciably lower than consumption. In the United Kingdom and on the Continent, there was only a slight decrease in consumption.

Canadian production during 1958 declined sharply, largely as a result of a strike which began in September at International Nickel's mines and plants in Ontario. Before this, due to reduced demand, the company had announced three curtailments in production which ultimately lowered its output to an annual rate of approximately 100,000 s.tons, or about two-thirds of capacity.

In 1958, the Free World attained a new peak in annual nickel production capacity, estimated at about 262,500 s.tons—almost double the capacity existing before the Korean conflict. Capacity is expected to rise progressively in the next few years, reaching about 300,000 s.tons in 1960 and about 325,000 s.tons in 1961. It is significant that the projected 1961 nickel production capacity will be about double the estimated total Free World consumption in 1958. As a result, consumers who had been forced for a protracted period to curtail their uses of nickel for civilian purposes can now be assured of steady, abundant supplies in the years ahead.

A substantial part of the estimated increase in Free World nickel production capacity by 1961 will be forthcoming from Inco's Thompson Mine in Manitoba, which is scheduled to start its breaking-in period some time in the latter half of 1960. Full production at the annual rate of 37,500 s.tons will be reached as soon as possible thereafter. At this rate, Inco's production capacity at its operations in Ontario and Manitoba will total 192,500 s.tons per year.

In October, 1957, the United States Government authorized the diversion to industry of some 67,500 s.tons of nickel scheduled for stockpile delivery in 1958. Due to oversupply, much of this nickel, a large proportion of which was premium priced, did not find markets. The United States Government has announced that it will also offer to industry all the nickel—about 50,000 s.tons—contracted for stockpile delivery in 1959.

The market price for electrolytically refined nickel in the United States remained throughout the year at 74 c. (U.S. currency), including the 1½ c. U.S. import duty. In Britain, 99.5 per cent nickel was quoted throughout the year at £600 per l.ton.

S.A. ATOMIC ENERGY BOARD

South Africa's Atomic Energy Board has been reconstituted so that it can better cope with new developments in the field of atomic energy. An independent deputy chairman, Dr. T. E. W. Schumann, has been appointed under the Minister for Mines, Senator Jan de Klerk. The uranium industry will be represented by Mr. C. S. McLean and Mr. H. C. Kock; commerce by Mr. A. C. M. Cornish-Bowden; and industry by Dr. A. J. Visser. A report on the siting of a nuclear reactor in South Africa is expected shortly.

Meanwhile an agreement has been signed with the Mitsubishi Shoji Trading Co., of Tokyo, to supply the company with 6½ tons of uranium oxide in concentrated form for research purposes. Negotiations are in progress for a five-year contract between South Africa and Japan to supply several hundred tons of uranium ore. Guarantees have been given by the authorities in Japan that the material will not be used for military purposes.

*

The United States Atomic Energy Commission has approved a plan to raise uranium milling capacity in the Wyoming area by approximately 1,700 tons a day, but it has not yet negotiated contracts with the five companies concerned for purchase of the additional uranium concentrates. Under this plan, two new mills will be constructed and three existing mills will be expanded.

ITALIAN QUICKSILVER TAXES

A report from Rome states that the Italian Finance Minister is about to introduce a new Bill suspending the manufacturing tax and the customs exit surcharge on quicksilver ores and quicksilver derivatives. The suspension would be valid from February 1 next. The measure is intended to assist exports of Italian quicksilver, which are at present handicapped by the high prices ruling compared with those of other producing countries.

Because of foreign competition, stocks of unsold Italian quicksilver held by the various mines have risen considerably. According to estimates by the Italian Mining Association, they now stand at more than one year's production.

*

More quicksilver was produced in the United States in July to September, 1958,

LONDON METAL AND ORE PRICES, DEC. 18, 1958

METAL PRICES

Aluminium, 99.5%, £180 per ton
Antimony—
English (99%) delivered, 10 cwt. and over £190 per ton
Crude (70%) £190 per ton
Ore (60%) bases 19s. 6d./20s. 6d. nom. per unit, c.i.f.
Arsenic, £400 per ton
Bismuth (min. 1 ton lots) 16s. lb. nom.
Cadmium 9s. 6d. lb.
Cerium (99%) net, £16 0s. lb. delivered U.K.
Chromium, Cr. 99% 6s. 11d./7s. 4d. lb.
Cobalt, 16s. lb.
Germanium, 99.99%, Ge. kilo lots 2s. 5d. per gram.
Gold, 250s. 2d.
Iridium, £19/£21 oz. nom.
Lanthanum (98/99%) 15s. per gram.
Manganese Metal (96% - 98%) £290
Magnesium, 2s. 5½d. lb.
Nickel, 99.5% (home trade) £600 per ton
Osmium, £16/£17 oz. nom.
Osmiridium, nom.
Palladium, £5/£5 15s.
Platinum U.K. and Empire Refined £19 10s oz.
Imported £17 10s./£18 0s.
Quicksilver, £74 0s. ex-warehouse
Rhodium, £40/41 oz.
Ruthenium, £13/£15 oz. nom.
Selenium, 50s. 0d. per lb.
Silver, 75½d. f. oz. spot and 75½d. f'd.
Tellurium, 15s./16s. lb.

ORES AND OXIDES

Bismuth	65% 8s. 6d. lb. c.i.f. 18/20% 1s. 3d. lb. c.i.f.
Chrome Ore—	
Rhodesian Metallurgical (semifriable) 48% (Ratio 3:1)	£15 15s. 0d. per ton c.i.f.
" Hard Lumpy 45% (Ratio 3:1)	£15 10s. 0d. per ton c.i.f.
" Refractory 40%	£11 0s. 0d. per ton c.i.f.
" Smalls 44% (Ratio 3:1)	£14 0s. 0d. per ton cli.f.
Baluchistan 48% (Ratio 3:1)	£11 15s. 0d. per ton f.o.b
Columbite, 65% combined oxides, high grade	nom.
Fluorspar—	
Acid Grade, Flotated Material	£22 13s. 3d. per ton ex. works
Metallurgical (75/80% CaF_2)	156s. 0d. ex works
Lithium Ore—	
Petalite min. 3½% Li_2O	40s. 0d./45s. 0d. per unit f.o.b. Beira
Lepidolite min. 3½% Li_2O	40s. 0d./45s. 0d. per unit f.o.b. Beira
Amblygonite basis 7% Li_2O	£25 0s. per ton f.o.b. Beira
Magnesite, ground calcined	£28 0s./£30 0s. d/d
Magnesite Raw (ground)	£21 0s./£23 0s. d/d
Manganese Ore Indian—	
Europe (46% - 48%) basis 55s. 0d. freight	83d./85d. per unit c.i.f. nom.
Manganese Ore (43% -45%)	70d./75d. per unit c.i.f. nom.
Manganese Ore (38%- 40%)	50d./54d. per unit c.i.f. nom.
Molybdenite (85%)basis	8s. 11d. per lb. (f.o.b.)
Titanium Ore—	
Rutile 95/97% TiO_2 (prompt delivery)	£35/£36 per ton c.i.f. Aust'n.
Ilmenite 52/54% TiO_2	£11 10s. per ton c.i.f. Malayan
Wolfram and Scheelite (65%)	95s. 0d./100s. 0d. per unit c.i.f.
Vanadium—	
Fused oxide 95% V_2O_5	8s./8s. 11d. per lb. V_2O_5 c.i.f.
Zircon Sand (Australian) (65 - 66% ZrO_2)	**£14 0s. per ton c.i.f.**

than in any other quarter since World War II, reports the Bureau of Mines, U.S. Department of the Interior. Output during the third quarter totalled 9,800 flasks compared with 9,400 in April to June, 1958, and 10,100 in April to June, 1944.

U.S. LITHIUM OUTLOOK

Mr. Gordon H. Chambers, chairman of the Foote Mineral Co., has disclosed that a contract to supply the Atomic Energy Commission with lithium hydroxide is expected to expire on May 1, 1959. As a result, Foote's lithium production will probably be reduced next summer.

The A.E.C. has, in the past, refused to comment on what it does with lithium, but it is understood that a form of the metal is used in making hydrogen weapons. Mr. Chambers said that the A.E.C. did not intend at present to negotiate for further supplies of the lithium hydroxide now being supplied to it by Foote and other companies. Although Foote is developing many "new and promising" industrial applications for this product, the present industrial markets did not justify full capacity operation of its lithium facilities. Mr. Chambers added that lithium had contributed materially to the company's growth in the past and was expected to continue to do so in the future.

INDIAN MANGANESE EXPORTS

At the initiative of the State Trading Corporation, of India, manganese ore interests in the country recently formed a joint marketing council and a joint procurement board. The council has been set up with a view to promoting ore exports, while the board will become a mineowners' pool internally. The setting up of the council is expected to benefit small mineowners, but fears have been expressed in certain quarters that such a move might force overseas buyers to look to other and cheaper sources of supply.

COPPER · TIN · LEAD · ZINC

(From Our London Metal Exchange Correspondent)

Markets continue to be without any definite tendency and it is expected that this state of affairs will continue until after the turn of the year. The only feature worthy of mention is the strength in the zinc market which has not only resulted in a larger backwardation and higher price levels but has also brought the price of the metal above that for lead, a state of affairs which has been prophesied in this column for many years.

COPPER CONSUMPTION STILL LAGS OUTSIDE U.S.

The main event in the copper world has been the publication in the United States of the Copper Institute figures for November. These show that, although the production of crude copper in the U.S. fell a little, the production of refined copper rose from 113,288 tons in October to 128,048 tons in November, at the same time domestic deliveries during the latter month reached 131,288 tons which was some 10,500 tons above the October figure: stocks of refined copper at the end of November showed a very appreciable decrease standing at 93,956 tons as compared with 128,490 tons at the end of the previous month.

Outside the U.S., however, the picture was not so satisfactory as production of both crude and refined copper showed appreciable increases reflecting the end of the strike in Rhodesia and at the same time deliveries to consumers showed a large drop but, nevertheless, the stocks at the end of the month showed very little change. The actual figures were, output of primary crude copper 131,334 tons against 112,724 tons for October: production of refined copper 102,061 tons as compared with 78,911 tons: deliveries amounted to 129,809 tons as compared with 171,827 tons for October: the stocks at the end of November were given as 143,178 tons as compared with 141,164 tons at the end of October and 265,249 tons a year ago.

Most experts took these figures as confirmation that trade in the U.S. is gaining momentum whilst elsewhere the effects of the recession are still being felt and it is believed that this same trend will be shown for the month of December and possibly also for the first month of next year. It appears, however, that the Rhodesian copper experts foresee a greatly increased demand towards the middle of 1959 as it has been announced that the Bancroft mine will commence production on April 1 and that production is expected to reach an annual rate of 50,000 l.tons in the second half of the year.

Consumer demand remains very patchy and, with stocks in official warehouses showing little change, the market has tended to be influenced by sentiment rather than anything else and it appears that the main factor has been the movements on Wall Street. A backwardation has been re-established and opinions differ as to whether this will be maintained or once again eliminated.

The labour situation throughout the world remains the same although at the time of writing there appears to be some chance of a settlement in Canada at the plant of the International Nickel Co. Ltd.

OFFICIAL WAREHOUSE TIN STOCKS DROP 700 TONS

Activity in the tin market has been at a low ebb and, apart from less demand than recently, operators are awaiting the result of this week's meeting of the International Tin Council. The latest statistics issued by that body refer to the month of September and show that world production of tin in concentrates amounted to 11,300 tons bringing the third quarter's production to 31,500 tons as compared with 32,500 tons in the previous quarter and 43,600 tons in the corresponding quarter of 1957.

Consumption in September amounted to 12,700 tons, bringing the estimated consumption for the third quarter up to 36,900 tons which is slightly above the figures for the first two quarters of this year but is still below the 38,800 tons for the third quarter of 1957. The consumption figure for September, however, was the highest this year and it is expected that this trend will continue through October and November.

Shipments of tin from Malaya during the first half of December show that the end of a quota period is approaching as the tonnage out of Singapore amounted to only 13½ tons whilst from Penang 674 tons were shipped. Stocks in official warehouses showed a fairly steep decline of 690 tons at a total of 16,383 tons and this has done much to keep the quotations for cash and forward metal level.

On Thursday morning the Eastern price was equivalent to £784 per ton c.i.f. Europe.

LEAD-ZINC PRICES FAR FROM SECURE

As mentioned above, the highlight in the lead and zinc markets has been the backwardation in the latter and the fact that for the first time since markets reopened the forward price of zinc has stood above the forward price for lead. The undertone for both markets has been better in spite of an unofficial report from the U.S. that the quota system was likely to be maintained for at least a year.

It appears that the strength in the zinc market is due to the technical position causing the backwardation whilst the strength in the lead market may be explained to a certain extent by a report that a sizeable barter deal has taken place involving this metal.

The latest figures issued by the American Bureau of Metal Statistics covering October show that for the first time this year more lead was consumed than produced, the output being estimated at 132,590 tons against a tonnage delivered to consumers of 149,106 tons. It is, of course, possible that actual consumption was very much below this figure as it is known that consumers' stocks were run down to a low level and that some restocking has been taking place.

There is, however, still little confidence in the present price of lead and only a little more in that for zinc but in the case of the latter so long as the backwardation exists it cannot be expected that the price level itself will recede very much.

Closing prices are as follows:

	Dec. 11		Dec. 18	
	Buyers	*Sellers*	*Buyers*	*Sellers*
COPPER				
Cash	£221½	£222	£220½	£220½
Three months	£221½	£221½	£219½	£219½
Settlement	£222		£220½	
Week's turnover	11,425 tons		9,650 tons	
LEAD				
Current ½ month	£71½	£71½	£72½	£72½
Three months	£72	£72½	£72½	£72½
Week's turnover	6,050 tons		5,325 tons	
TIN				
Cash	£762	£763	£758½	£759
Three months	£762	£762½	£759	£759½
Settlement	£763		£759	
Week's turnover	925 tons		650 tons	
ZINC				
Current ½ month	£73½	£73½	£75	£75½
Three months	£70½	£70½	£71½	£72
Week's turnover	8,925 tons		8,600 tons	

London Metal and Ore Prices appear on page 701.

Mining Finance

Gold Fields' Growth Prospects

The gold-mining holdings of New Consolidated Gold Fields, the wholly-owned operating subsidiary of Consolidated Gold Fields of S.A., are notable for the fact that 90 per cent by value are in mines which, at full production, will produce gold at less than 150s. per oz., assuming present cost levels to be held. This is especially significant in that only one of the pre-war mines in the group produces at anything like this level. Thus, as far as gold is concerned, this house must have undertaken a substantial amount of switching in the post-war years, although, of course, Gold Fields still provides management services for the older mines of the group.

The justification of this policy is apparent from a paragraph at the end of Mr. Robert Annan's statement at the company's annual meeting last week (page 705). Gold Fields' year ends on June 30, so that the nadir of base-metal prices, expressed in terms of reduced or passed dividends, will be reached in the 1959 accounts. In spite of this, Mr. Annan was able to say that "even if the base metal and platinum markets show no improvement, our dividend revenue for the current year should show little, if any, diminution from that of last year, and a rising tendency in the ensuing years. With any recovery in these markets, we shall be that much better off".

An interesting hint was given by Mr. Annan in referring to West Witwatersrand Areas, one of the holding companies of the group, which recently acquired the capital of New Consolidated, Free State, Exploration. This gave West Wits substantial investments in Harmony and F.S. Saaiplaas, and was, said Mr. Annan, "a first step in the direction of widening this company's interests". West Wits, of course, has recently announced proposals for increasing the authorized capital, and among the purposes to which the proceeds of the coming issue are to be put is the taking up of the company's rights in the latest Western Deeps issue. Possibly this is the next step implied by Gold Fields' chairman. If not, it will be interesting to see what the next move will be.

Gold Fields' shares are currently priced at about 68s. to yield 6.5 per cent. This price, which has been depressed by the absence of platinum dividends, is low in comparison with those of other major finance houses, and an investment at the moment would have extremely good prospects.

LONDON MARKET HIGHLIGHTS

South African gold shares regained their sparkle in the past week. Business picked up again and prices generally edged higher. Recently, enthusiasm for gold shares has largely come from Johannesburg, New York and various Continental sources. Most of this business has been channelled via the Cape, where it is possible to deal stamp-free. But on Tuesday, when Johannesburg was on holiday, the demand for gold did not let up. Particularly was this so in the case of the finance issues, which were one of the week's firmest sections in the market.

Once again it was obvious that not a great deal of stock was available, particularly in the case of Central Mining, which advanced 4s. 6d. to 73s. 6d. at one time. Anglo American (173s. 9d.), Gold Fields (68s. 6d.), and Johannesburg Cons. (52s. 6d.) were also sought after, but for no apparent reason Union Corporation (49s. 3d.) appeared to be overlooked. West Wits moved up to 55s. 6d., their best since 1951. There were hopes that details of the coming share issue may be given at next Tuesday's meeting.

Free State Geduld (118s. 9d.) and Western Holdings (119s. 4½d.) moved up in a generally firm O.F.S. group; talk that the shares might be split into more manageable amounts received little credence.

The feature of the copper share market was the unabated demand from Johannesburg and London for Bancroft following confirmation that the mine is to reopen in April. The shares advanced several shillings to their best this year of 31s., a movement which was viewed with some misgivings in several quarters.

Most of the mine's technical problems seem to have been overcome now, but from an investment point of view Bancroft is going to have to carry a heavy burden of debt for some time. Already there is an accumulated loss of over £3,000,000, to which must be added short-term debts of £7,500,000 and long-term debts of another £5,000,000. Meanwhile, the issued capital amounts to £5,500,000. It will thus be seen that, although the long-term prospects of the mine are undoubtedly good, an investor is going to have to be very patient before he gets a worth-while return on his money. Even so, there is no doubt that buyers are eager for the shares whatever their immediate investment merits, and while this attitude persists the chances of further capital appreciation must be considered as good.

Rather more soundly based was the buying of Chartered, which lifted the shares to 74s. This is an investment stock of the highest order, and with its growing income from a substantial gold share portfolio (mostly finance houses) and the recovering royalties from copper, Chartered already yields over 6 per cent. The shares provide an excellent investment for those who want security plus a stake in the growing benefits of mining enterprise.

Ghana issues recovered their normal equilibrium following the withdrawal of the Camp Bird proposals. During the storm over the Ghana Minerals Corporation, Ashanti fell to 15s. 4½d. They have since recovered to 15s. 9d., but the recent developments in Ghana can have done little to encourage an investor's confidence in that country.

BANCROFT TO RESUME ON SCHEDULE

At the annual meeting of Bancroft Mines last week, Mr. K. C. Acutt, the deputy chairman, confirmed that the mine will resume production next April. Development rock will be fed to the mill from the middle of February for metallurgical tests, and from April 1 ore from stoping at No. 1 shaft will be treated. The rate of production will then be steadily increased, and the rated capacity of the plant should be reached by the end of the year. Thereafter, about 50,000 tons of copper will be produced annually.

For the time being, it is proposed to draw all mill feed from No. 1 shaft, ore from the lower-grade Konkola body, served by No. 2 shaft, not being required until the plant is treating more than the present rated capacity.

The results of the development work carried out while production has been in suspense appear to have been satisfactory. In addition, pumping has lowered the water table, while exploratory drilling has revealed additional ore available for exploitation.

CAMP BIRD DROPS GHANA PROPOSALS

The obscure situation resulting from the three statements regarding Ghana Minerals Corporation which appeared on page 656 of last week's *Mining Journal*, appears to have been resolved by Camp Bird's withdrawal of the proposals concerning mineral rights in Ghana. After we went to press, Camp Bird published copies of letters, purporting to inform the company that the Ghana Government had accepted its proposals in principle. Camp Bird claimed that the letters emanated from the Ghana Ministry of Information and Broadcasting.

On Friday, Mr. John Dalgleish, chairman of Camp Bird, replied to the open letter addressed to him by the London Advisory Committee of the Ghana Chamber of Mines. He defended the proposals on the ground that mining concerns in Ghana were liable to expropriation, and that the Ghana Minerals Corporation would provide a solution equitable to British capital and legitimate Ghanaian aspirations.

On Sunday, Reuter reported that on the advice of Dr. Nkrumah, the Governor-General of Ghana had revoked the appointment of Mr. S. I. Iddrissu, M.P., as Parliamentary Secretary to the Ministry of Information.

Meanwhile, the London Stock Exchange had suspended quotation of Camp Bird shares, pending clarification of the situation. On Sunday, the company withdrew its proposals in order not to prejudice the Camp Bird quotation "in view

of the contradictory statements which have appeared in the Press apparently emanating from the Ghana Government." Camp Bird will now have no commitments in the scheme beyond the £50,000 initially subscribed.

As we go to press, the Camp Bird quotation remains suspended.

BUFFELS TO SINK A SUB-VERTICAL

In his advance statement to shareholders of Buffelsfontein, Mr. J. Scott, the chairman, disclosed that preparatory work will soon commence on sinking a sub-vertical shaft 3,000 ft. south of the Pioneer shaft. The shaft, which will link up with the existing Pioneer shaft system, is intended to serve the lower levels of the mine, and will reach a final depth of 7,525 ft. below surface. Concrete lined, it will have a capacity of 100,000 tons monthly, in addition to providing down-cast ventilation facilities.

The capacity of the mill is currently about 160,000 tons per month, and the Pioneer system is capable of hoisting a similar amount. The extent to which this capacity can be utilized depends on the availability of native labour. Subject to this, it is hoped that the milling rate will be up to 130,000 tons per month early in the new year.

In order to cope with the expanded milling rate, expenditure will be incurred during the coming year on such items as housing, pumping and ventilation. This, coupled with expenditure on the new shaft, will make a total outgoing of about £1,800,000 on capital account in the current year. Thus the fact that Buffels' dividend was not raised above 1s. 6d. last week was hardly surprising, although an increase to 1s. 9d. next June looks quite probable.

Kentan-Zams.—Kentan Gold Areas have received acceptances totalling 89 per cent in respect of their offer for the issued capital of Zambesia Exploring Co. The offer is now unconditional. In order to enable as many shareholders as possible to take advantage of the offer, the last date for acceptance has been postponed until December 31.

Consolidated Diamonds of S.W.A.—A final dividend of 10s. per share from Consolidated Diamond Mines of South West Africa makes, with the interim of 5s., an unchanged total of 15s. per share for 1958. The estimated profit for the year, before tax, is £11,747,000, compared with £14,974,986 in 1957.

Anglo American Colliery Dividends.—Final dividends from four of the colliery companies in the Anglo American group have been announced. Vryheid Coronation is paying 1s., making 1s. 9d. compared with 1s. 4½d. Springbok is also to pay 1s., which makes an unchanged total of 1s. 7½d. The Coronation Collieries declaration is of 1s. 6d. per share, making 2s. 3d. against 2s., while Amalgamated Collieries of S. Africa is paying 2s. 9d. to make a total of 4s. 3d. (4s. last year). The estimated profit for 1958, before taxation, of this latter company is £957,000, compared with £924,658 in the preceding twelve months.

Taquah and Abosso.—A general meeting of Taquah and Abosso Mines (in voluntary liquidation) will be held on January 5, 1959, to receive the liquidators' accounts for the year to October 30 last.

BUFFELSFONTEIN GOLD MINING COMPANY LIMITED

(Incorporated in the Union of South Africa)

CHAIRMAN'S STATEMENT

The Ninth annual general meeting of Shareholders of Buffelsfontein Gold Mining Company Limited will be held on December 22 in Johannesburg.

The following is a statement from the Chairman, **Mr. J. Scott:**

The Directors' Report and the Accounts for the year ended June 30, 1958, have been in your hands for some weeks, and give you full information on the Company's affairs at that date.

The mine commenced production of gold in January, 1957, and during the six months ending June 30, 1957, produced a working profit amounting to £700,000. In July, 1957, the production of uranium started, and the plant was officially opened during October by their Excellencies the High Commissioner for the United Kingdom and the Ambassador for the United States.

During the past financial year, the first 12 months of full production, the combined gold and uranium profit amounted to £3,552,666. Of this amount £1,729,516 was appropriated for capital expenditure, including redemption of loans, £1,650,000 was absorbed by dividends 1 and 2, representing in total 3s. per share, and £173,150 has been carried forward.

The issued capital remains unchanged at £5,500,000 in eleven million shares of 10s. each, and particulars of the amounts due on loan account, totalling approximately £7,900,000, appear in the Report and Accounts. As Extension No. 3 of the Stilfontein Township has just been proclaimed, steps are at present being taken to register a bond for £500,000 in favour of S.A. Mutual Life Assurance Society over housing to a value of £750,000 owned by the Company, on the conditions set out in paragraph 1 of the Auditors' notes on the Accounts.

The monthly milling rate during the year increased from 110,000 tons to 117,000 tons per month, while the recovery grade remained relatively steady at 6.586 dwt. per ton.

During the first five months of this year the milling rate has averaged 119,800 tons per month, with a recovery grade of 6.7 dwt. and 0.438 lb. per ton, yielding a total working profit of £1,898,247, derived as to £926,247 from gold and £972,000 from uranium and acid.

Development

The report of the Consulting Engineers for the year under review shows that of 24,225 ft. sampled, the average values were 572 inch dwt. for gold and 35.42 inch lb. for uranium. During the first five months of the current year, development totalled 48,270 ft. Of this, 12,222 ft. were on reef and of 12,090 ft. sampled 98.6 per cent proved payable at an average value of 705 inch dwt. for gold and 46.71 inch lb. for uranium.

During the year, the ore reserves were built up to 2,217,000 tons at 9.55 dwt. per ton for gold and 0.593 lb. per ton for uranium, an increase of just over a million tons on the last published figures.

Good progress was made with the construction and other work necessitated by the expansion programme to which I referred at last year's Annual General Meeting. The Reduction Plant extension to a total nominal capacity of 160,000 tons per month was completed and the hoisting capacity was correspondingly increased by the installation of a rock Winder in the Pioneer Ventilation Shaft. The extent to which the additional capacity can be utilized will depend upon the availability of native labour, but it is anticipated that the milling rate will rise to approximately 130,000 tons per month early in 1959. To cope with the proposed increase in milling, expenditure on additional European and native housing, underground equipment, expanded pumping and ventilating capacities and other items will be necessary.

In order to prepare for the eventful mining of the deeper area down dip of the present workings, it will be necessary in due course to sink a sub-vertical shaft. The sinking of this shaft was planned in the original mining programme, but its siting was deferred until more information was available on the exact position of certain down-throw faults which were known to exist.

These faults have been encountered in development south of the present shaft system and it has now been decided to site the sub-vertical shaft 3,000 ft. south of the Pioneer Shaft. This will be sunk from 13 level, which is 4,930 ft. below surface, to a final depth of 7,525 ft. below surface. It will serve the lower levels of this area of the mine and will link up with the existing Pioneer Shaft system to surface. The shaft will be 23 ft. in diameter and concrete lined, designed to hoist men, material and rock, and to provide down-cast ventilation for a duty equivalent to 100,000 tons milled per month.

These expenditures, together with the cost of the long overdue mine offices and the preparatory work and hoists for the sub-vertical shaft, will involve an estimated capital expenditure for the current financial year of the order of £1,800,000.

Uranium

In regard to uranium, advice was received in September of this year that, by arrangement between the Atomic Energy Board and the Combined Development Agency, the Industry's production of uranium oxide for purchase by the Agency is to be limited to 3,100 tons for the six months ending December 31, 1958, of which this Company's allocated quota is 383,500 lb. Under certain circumstances, the respective quotas allocated to uranium producers are subject to annual review, and it has been agreed that in any re-allocation of quotas Buffelsfontein will receive priority to the extent of an increase not exceeding 86,000 lb. per annum. The production of the present quota and of any such increase is well within the capacity of the plant.

The pyrite and acid plants commenced production in August, 1957, and the capacities of both have since been expanded. The pyrite plant, with an increased capacity of 120,000 tons per month, came to full production in June, 1958, while the acid plant with a present capacity of 250 tons of acid per day, was commissioned in August, 1958.

This concludes my review of the operations at the mine over the past 17 months, and before closing I wish to place on record the Board's appreciation of the loyal and efficient services rendered by the Manager, Mr. F. Nott, and his staff at the mine, as well as by the staffs of the Johannesburg and London Offices of the Company.

CONSOLIDATED GOLD FIELDS OF SOUTH AFRICA

RECORD INVESTMENT INCOME

INCREASING DIVIDENDS FROM NEWER MINES

MR. ROBERT ANNAN'S SPEECH

The annual general meeting of The Consolidated Gold Fields of South Africa Ltd. was held on December 11 in London.

Mr. Robert Annan, chairman, in the course of his speech, said:

Dealing first with the Accounts, the Issued Capital of the Company was increased by the shareholders subscribing in July, 1957 for a further 979,202 Ordinary Shares of £1 each at £2 per share and at the same time for £1,958,404 6% Convertible Unsecured Loan Stock 1977/82, at par. The proceeds were made available to New Consolidated Gold Field Limited, the Company's wholly-owned operating subsidiary. The Loan Stock is convertible into Ordinary Shares of the Company and at June 30, 1958, £68,203 Stock had been so converted into 27,157 Ordinary Shares. Since the end of the year further conversions have taken place, leaving a balance of Loan Stock outstanding of £1,119,949.

Operating Company's Accounts

The Accounts of the operating Company show a working profit for the year of £2,245,000. Dividends and interest on our investments provide the principal contribution and at £2,252,000 constitute a further record, exceeding last year's figure by £120,000. This continued growth in our investment income is due mainly to increased dividends on our holdings in the Far West Rand and the Orange Free State. Profit on realization of investments and sundry revenue is reduced to £669,000. This is a fluctuating item which last year received the substantial benefit from the sale of our interest in the Trinidad Oil Company. If this item is excluded, this year's figure is in excess of that of the previous year.

After charging £576,000 for administration and depreciation of Fixed Assets, £100,000 for interest on loan from The Consolidated Gold Fields of South Africa, Limited and £883,000 for overseas and U.K. taxation, the net profit for the year is £1,362,000. £500,000 has been appropriated to Investment and Exploration Reserve against which has been charged £1,040,000 for adjustments in value of certain Investments, including expenditure on exploration. After meeting the Preference Dividends and including the balance of unappropriated profit brought forward from last year, there is a balance of £1,128,000 available for distribution. An interim dividend of 1/- per share was paid in July and an increased final dividend of 3s. 6d. per share has now been declared. These together absorb £789,000, leaving a balance of unappropriated profit of £339,000.

Profits and Dividend

Net profits for the year attributable to the operating Company and retained by its subsidiaries amounted to £337,000.

The capital and reserves of the operating Company and its share of those of its subsidiaries total £18,897,000. This is represented by Fixed Assets £1,441,000, Investments at or under cost £15,166,000 and Net Current Assets £2,290,000.

An interim dividend of 1/- per Ordinary share, less tax, was paid in July and as the operating Company has now declared an increased final dividend of 3s. 6d. per share, less tax, your Directors recommend the payment of a like dividend on the increased Ordinary Capital of the parent Company, which, if approved, will be paid on December 18, 1958.

Gold Mining Industry's Progress

In the Union of South Africa the gold mining industry made further progress in the twelve months covered by our report. The number of mines in production was unchanged and a decline in output and profit from the older mines was more than offset by continuing expansion in productivity of the newer mines, which has not yet reached its peak. The total output of gold, the working profit from gold and from uranium, and the total of dividends declared all showed an increase over the previous year. The new mines, though only accounting for a quarter of the total tonnage milled, provided 44.3 per cent of the gold and 58.3 per cent of the dividends. The cost of producing gold fell by 5s. 7d. an ounce to an average of 179s. 9d. for all mines; for the new mines alone it was 133s. 7d. The working profit from gold rose by £6½ million to £60½ million; from uranium the profit rose by £7½ million to just under £36 million.

The Newer Mines

Our investment in South African gold mining is mainly in the newer mines whose continued progress I have just described. In this category we have received new dividends from Free State Geduld and increased dividends from Doornfontein, St. Helena, West Driefontein and Western Holdings. These account for the continued increase in our dividend income in spite of a falling off in receipts from platinum and base metals.

Among the newer mines, West Driefontein has made further progress. Doornfontein has also had a successful year. At the Free State Saaiplaas property sinking of Nos. 1 and 2 Shafts was continued.

In West Witwatersrand Areas Ltd. the most significant event has been the acquisition of the entire share capital of New Consolidated, Free State, Exploration Co. Ltd. for 1,484,992 Ordinary shares of West Wits together with £371,268 in cash. This brings to West Wits an interest in the Orange Free State field in the shape of substantial holdings in Harmony and Free State Saaiplaas and is a first step in the direction of widening this Company's interests.

Platinum and Base Metals

The platinum industry, in which we have a large interest, suffered a severe set-back in the past year. Several factors have combined to bring about the fall in volume of sales and of price which have taken place. The most important was the abrupt withdrawal of the oil industry from the market, but it is reasonable to expect that a steady demand from the oil industry, possibly at a lower level, will re-emerge in due course. It is also possible that the catalyst of higher platinum content may establish its superiority in the long run.

The base metal industry has also been passing through a period of depression. Our base metal interests consist in the main in shareholdings in Rhodesian copper mines and in lead-zinc mines of which Fresnillo, Tri-State Zinc and Lake George are the most important. All of these, except Bancroft, continued to operate throughout the year though at a reduced rate of profit. Activity on the properties of the South West Africa Company is directed mainly to the exploration of the undeveloped areas of its properties though production on a small scale continues.

The decline in the Stock Exchange value of base metal and platinum shares accounts for a substantial part of the amount charged this year against the Investment and Exploration Reserve.

Exploration

We continue to carry on exploration in various fields in Africa, Australia and North America. While this work has not resulted in establishing any new business during the past year, there are several interesting prospects in process of examination and development. Most of the work which we are now doing is in districts already known to be productive, searching for repetitions of ore-deposits of known value. Our survey, partly from the air, of large areas in Central Africa has not so far yielded any significant results though some prospects are still under examination.

Our interest in oil is mainly through Apex (Trinidad) and Ultramar. In association with these two companies we are engaging in oil exploration in Western Canada on a modest scale.

Among our industrial interests, Johnson Matthey and Co. Ltd. had a successful year and their rate of dividend was maintained.

Encouraging Outlook

The outlook for the future appears encouraging. The profits from our gold mining interests in South Africa are increasing and under existing conditions should continue to do so for some time to come. I see no reason to anticipate any adverse change in the general conditions in this field or any threat to private industry. Labour relations remain excellent and the supply of labour, both European and African, reasonably adequate to our needs. Transport, and the supply of fuel, power and water are now sufficient to meet the demands of industry. In the base metal markets prices have recovered from their lowest point and while consumption is still below the peak, the general situation is more sound than it was a year ago.

The final outcome is that, even if the base metal and platinum markets show no improvement our dividend revenue for the current year should show little, if any, diminution from that of last year and a rising tendency in the ensuing years. With any recovery in these markets we shall be that much better off.

The report and accounts were adopted.

Class Meetings

At subsequent class meetings of the holders of First and Second Preference and Ordinary shares and at an extraordinary general meeting of the company, resolutions in connection with the alteration of the rights of both classes of Preference Shares, including the increase of the rate of interest from 6 per cent. to 7 per cent. per annum, and the amendment of the company's borrowing powers were carried.

THE NEW PIONEER CENTRAL RAND GOLD MINING COMPANY LIMITED

(Incorporated in the Union of South Africa)

CHAIRMAN'S STATEMENT

The Thirty-fifth annual general meeting of the New Pioneer Central Rand Gold Mining Company Limited will be held in Johannesburg on December 22, 1958.

The following is a statement from the Chairman, **Mr. J. Scott**:—

The Directors' Report, together with the Balance Sheet and Income and Expenditure Account, were sent to you on November 28, and give you details of the Company's activities during the year ended June 30, 1958.

The Company had a satisfactory and prosperous year, and although no investments were realized, the net profit increased by £10,126 to a total of £264,994, the increasing revenue from the permanent sources of income such as dividends and property rentals having more than compensated for the absence of the investment realization profits of previous years.

At the date of the Balance Sheet, the quoted shares held by the Company at a cost of £898,428, had a market value of £3,173,593, which at December 5, 1958, had increased to £3,573,297.

As you are aware, more than 90 per cent of the Company's shareholdings are in the Stilfontein, Hartebeestfontein, and Buffelsfontein mining companies and other companies with interests in the Klerksdorp area. The three mines continued to make impressive progress, and in all cases increased their dividend distribution rates during the year under review.

The Company's dividend income for last year reached a record total of £287,019, as compared with the 1957 receipts of £110,247.

The Income and Expenditure Account shows an increase of £13,768 in rentals and freehold revenue. The increase is derived mainly from the rentals of the additional business premises in the Stilfontein Civic Centre, which were completed in the early part of the financial year. The Township now houses about 12,000 European persons, and it has become necessary to make a start with the building of additional shops and other business premises to meet the growing demand. Building plans are being prepared and construction should commence early in the New Year. The completed cost will be of the order of £175,000, which will be financed by means of long-term borrowings on security of mortgage bonds.

Four garages are now operating in the Township, the new native trading store and non-European medical and dental consulting rooms have been completed and let, as well as a small block of shops in Extension 3.

Extension No. 3 of the Township, in which a small number of the larger residential stands, some flat sites and light industrial stands are unsold, has at last been proclaimed. This should stimulate sales, as purchasers will now be able to raise building society loans to finance the erection of their homes and other premises.

In Extension No. 4, which is still unproclaimed, the bulk of the reticulated residential stands in Zone 1 have been sold and the servicing of Zone 2 is proceeding. As the scale of operations of the mining companies expands, so their demand for more building sites increases, and it is anticipated that the residential lots in Zone 1 and the greater portion of Zone 2 will be sold out by the end of 1960.

The reticulation of these Zones, which must be financed by the Company as the sole Township owner, involves it in heavy capital expenditure. At the last Annual General Meeting, you were told of the anticipated sale during last year of the electrical and sewage services in the original Township and Extension No. 3 to the Stilfontein Health Committee, subject to the price being agreed by the Provincial Authorities and the Committee obtaining the necessary borrowing powers. When this happens, the Company will receive substantial refunds of past expenditure. I understand that these matters will shortly be finalized, and the Company should receive payment for the electrical services early in the New Year and for the sewage installations during the second quarter of 1959.

In Ellaton Township, situated between Klerksdorp and Orkney, selling activity has been negligible owing to protracted delays in getting official approval of the re-layout plans, but there is hope of a solution of the difficulty during the coming months.

The Directors' Report deals fully with the Balance Sheet and the Income and Expenditure Account. On June 10, 1958, Dividend No. 2, at the rate of 2s. 6d. per share, was declared, and a balance of unappropriated profits of £158,778 was carried forward, with a resulting increase in the revenue reserves, which now stand at £970,860.

PAHANG CONSOLIDATED

The 52nd annual general meeting of The Pahang Consolidated Co., Ltd., was held on December 11 in London, **Mr. J. N. Davies,** chairman, presiding.

The following is an extract from his circulated statement for the year to July 31, 1958:

The year under review was a particularly difficult one, opening with a strike followed by a period of "go-slow," seriously affecting production in the early part of the year. Heavy restriction of output and export was imposed by the Government of Malaya, implementing decisions reached by the International Tin Council.

The impact of restriction of production upon a lode property such as yours must be very severe and stringent meaures of economy became necessary: heavy reduction in days worked, reductions in Staff and Labour, salary cuts, withdrawal of certain concessions, limitation of stores and other purchases and a reduction of development footage have all been considered essential.

The more recent signs of strength in the Tin Market lead me to believe that now the Buffer Stock support has been withdrawn, natural market processes are at work, and consumers are once more encouraged to buy for their own stock. I further believe that conditions in the Tin Industry will show further signs of improvement in the not distant future.

The net profit was £9,266 and the directors recommended a dividend of 2½%.

The report and accounts were adopted.

THE LAMPA MINING CO. LTD.

The 52nd Annual General Meeting of The Lampa Mining Company Limited, was held in Liverpool on December 17. The following are extracts from the circulated statement by the chairman, **Mr. J. Shirley Espley.**

The Company's affairs are in an interesting condition. On the one hand the grade of silver ore for the smelter seems likely to decline, the quality of the oil presents problems, and costs, for all our efforts, always seem to go up. On the other hand, the price of copper is well above its worst point, and the Peruvian exchange rate has moved in our favour.

San Rafael continues to develop in an interesting manner and has undoubtedly contributed considerably to our results. It remains to be seen whether it may do so to an even greater extent in the future.

The prospects of the Segregation Plant and Process have taken a step forward, they hold out before us a good hope for the future, but it would be unwise to under-estimate the time and expenditure that are bound to be required before this project can become a substantial contributor to our profits. Our future prospects can, therefore, be summed up as giving grounds for sober confidence and optimism.

The Directors have given very careful thought to the dividend question. They consider that in previous prosperous years they have always been conservative in their distribution policy and have thereby put the Company in a strong financial position. Last year will, they hope, prove to be the exception rather than the rule, and they have felt justified in drawing on the undistributed surplus brought forward, in order to maintain the dividend at a reasonable rate. I hope that shareholders will agree. The financial position remains extremely sound, and the general outlook has improved since the end of the financial year.

Publications Received

Information on popular agriculture, development plans, latest foreign trade figures, currency and banking, weights and measures, and communications is given in the *Asian Annual. 1958*, published by Foreign Correspondents Ltd., and costing 20s. This is the 5th edition of this reference handbook, and it includes details on all the countries of south-east Asia and the Far East. A special section contains information on trade and representation with non-Asian countries, and a chapter on the extent of economic assistance from all sources to Asia during the current year.

*

Volume V of *Nuclear Metallurgy* has been published by the Metallurgical Society of the American Institute of Mining, Metallurgical, and Petroleum Engineers. It contains the papers at symposia on ceramic base elements and metal base fuels and jacket components conducted by the Institute of Metals Division on October 29, 1958, at the Society's Fall meeting in Cleveland. Copies of the volume may be ordered from A.I.M.E. headquarters at 29 West 39th Street, New York 18, N.Y., at $6 a copy to non-members of A.I.M.E. and $4 a copy to A.I.M.E. members.

THE CAM AND MOTOR GOLD MINING COMPANY (1919) LIMITED

CHAIRMAN'S REVIEW OF OPERATIONS

The 39th Annual General Meeting of the Company was held on December 3 in Salisbury, Southern Rhodesia.

Sir Peter Bednall, K.B.E., C.B., M.C., A.C.A. (the chairman) who presided, said: The capital expenditure programme was continued during the year under review and an amount of £178,981 was spent.

The current assets as at June 30, 1958, exceeded current liabilities by £74,755 compared with £14,762 at June 30, 1957. It is satisfactory to note that this position has improved without in any way retarding the capital expenditure programme.

Turning now to the profits at Cam and Motor and Pickstone Mines, the working profits earned for the year were £441,827 and £46,096 respectively. The combined profits for these mines therefore, show a reduction of £34,790 against the comparable figure for last year. This can be attributed to the Directors' policy of lowering the grade to the mill and thus prolonging the life of the mine, and is in accordance with plans formulated at the beginning of the financial year under review.

Revenue from the retreatment of the slimes dump amounted to £229,827, yielding 18,694 fine ounces, and the resultant working profit of £166,327 is included in the working profit of £441,827 for Cam and Motor Mine.

After commenting in detail on current technical operations, the chairman continued: Ore reserves at Cam and Motor Mine showed a drop of 82,700 tons to 1,251,300 tons at 7.2 dwts. The average value of ore milled for the year was 6.68 dwts. This is in line with the Board's policy of mining below ore reserve grade.

I referred last year to the continual efforts being made by all concerned to contain working costs within reasonable limits. During the year under review, the rise in working costs per ton milled was 1/3d. compared with a rise of 2/5d. per ton milled for last year.

Pickstone Mine Progress

The milling rate was maintained at about 7,000 tons monthly and the rate of extraction improved from 78.85% to 82.51%.

The rate of development at Pickstone has been substantially increased. Total development footage for the year under review amounted to 4,616 ft. of which 3,050 ft. were primary. Compared with last year, there is an increase in primary development footage of 250%.

In addition, 1,142 ft. were sampled and 515 ft. amounting to 45% were payable; the comparable figures for last year were 95 ft. payable or 21% of the footage sampled.

Ore reserves at Pickstone increased by approximately 2,000 tons, but there had been a decrease in ore reserve grade of 0.03 dwts., due to the application of a reduction factor of 5% which has been found necessary as a result of the two years of operations to date.

The average value of ore milled was 4.23 dwts. compared with the revised ore reserve grade of 5.2 dwts.

The report and accounts were adopted.

Rand and Orange Free State Returns for November

Company	November 1958 Tons (000)	Yield (oz.)	Profit† (£000)	Year ends	Current Financial Year Total to date Tons (000)	Yield (oz.)	Profit† (£000)	Last Financial Year Total to date Tons (000)	Yield (oz.)	Profit† (£000)
Goldfields										
Doornfontein	88	36,568	191·0	J	438	182,687	964·7	428	176,364	1027·4
Libanon	98	23,213	54·5	J	490	115,492	272·7	603	114,731	266·6
Luipaards Vlei	70	12,130	5·7	J	350	60,231	27·1	370	65,748	46·6
Rietfontein	18	4,548	10·0	D	232	53,858	133·5	265	62,108	177·2
Robinson	72	15,200	1·5	D	796	168,791	30·2	834	171,558	108·0
Simmer & Jack	90	17,008	12·2	D	969	184,764	151·9	1,058	196,232	206·7
Sub Nigel	67	15,928	25·4	J	331	79,889	127·6	330	83,982	140·0
Venterspost	129	31,998	60·2	J	650	160,528	302·3	615	147,778	287·5
Vlakfontein	50	17,738	85·6	D	546	192,884	934·3	543	194,530	937·2
Vogels	94	20,783	45·1	D	1,049	234,255	485·0	1,087	250,925	754·8
West Drie	81	77,361	635·1	J	401	382,952	3136·7	375	359,277	3049·0
Anglo American										
Brakpan	123	16,501	10·5	D	1,362	181,861	130·8	1,223	201,852	144·4
Daggas	234	48,101	255·0	D	2,555	529,959	2784·1	2,498	544,173	2968·5
East Daggas	91	15,091	28·1	D	1,005	166,391	310·6	1,037	171,806	375·6
F. S. Geduld	75	55,687	412·7	S	149	109,780	803·1	128	89,959	622·2
President Brand	96	72,274	601·1	S	194	144,747	1206·8	139	105,110	844·1
President Steyn	95	36,738	195·2	S	189	73,896	390·9	186	70,885	387·0
S. A. Lands	92	19,259	56·2	D	988	213,412	587·5	966	206,875	655·6
Springs	118	14,923	9·6	D	1,392	158,958	97·0	1,393	153,140	75·6
Vaal Reefs	79	35,868	204·9	D	804	363,365	2061·5	683	302,668	1796·6
Welkom	90	27,113	78·2	S	180	54,233	156·5	163	48,477	128·4
Western Holdings	100	58,500	442·7	S	200	115,503	866·8	198	100,863	739·2
West. Reefs. Ex.	108	26,983	70·7	D	1,223	292,056	713·5	1,337	314,354	727·4
Central Mining										
Blyvoor	103	69,618	512·2	J	520	341,317	2480·2	524	312,948	2255·0
City Deep	112	23,040	13·0	D	1,398	276,440	117·1	1,641	320,706	169·8
Cons. M.R.	129	19,400	15·9	J	758	101,950	73·1	890	116,168	47·4
Crown	228	35,039	14.6	D	2,531	386,000	170·2	2,614	383,054	30·7
D. Roodepoort	188	33,937	52·6	D	2,015	364,671	565·2	2,214	355,101	566·4
East Rand Prop.	219	54,252	118·0	D	2,362	621,730	1581·0	2,420	618,679	1454·4
Harmony	100	40,647	162·4	J	481	192,556	749·7	423	168,214	867·1
Modder East	123	12,726	2·1	J	671	66,426	9·8	697	70,352	16·1
Rose Deep	31	5,797	0·6	D	581	77,343	L17·9	554	82,819	5·8
J.C.I.*										
E. Champ d'Or	13	480	L25·9	D	138	3,939	L299·9	133	3,783	L291·4
Freddies Cons.	57	14,354	L37·0	D	585	164,859	L429·9	616	175,258	L165·2
Govt. G.M.A.	62	11,611	0·0	D	687	123,352	5·6	1,017	172,381	L60·8
Randfontein	20	3,877	5·1	D	294	47,888	55·9	684	113,344	93·2
Union Corporation										
East Geduld	130	39,981	279·5	D	1,417	435,788	2985·6	1,495	459,140	3232·3
Geduld Prop.	72	12,436	17·1	D	857	141,111	131·6	1,061	168,147	250·3
Grootvlei	190	40,378	205·2	D	2,165	460,638	2345·9	2,161	461,988	2430·4
Marievale	79	20,412	98·2	D	807	210,935	946·3	785	206,084	926·0
St. Helena	134	38,753	207·2	D	1,329	389,249	1990·8	1,280	372,832	2053·7
Van Dyk	73	13,383	20·4	D	839	154,632	275·8	848	149,402	216·0
General Mining										
Buffelsfontein	122	41,307	187·2	J	599	202,159	926·2	556	180,478	985·7
Ellaton	31	7,252	31·0	D	351	81,648	349·4	357	78,091	225·1
S. Roodepoort	29	6,921	22·4	J	150	35,251	120·5	149	34,750	127·3
Stilfontein	125	63,896	420·6	D	1,274	635,363	4123·6	1,124	511,980	3354·9
W. Rand Cons.	130	19,074	17·1	D	1,509	202,532	163·0	1,544	220,997	148·6
Anglo Transvaal										
Hartebeestfontein	87	47,850	325·2	J	435	238,380	1592·1	429	235,115	1585·3
Loraine	74	14,333	L19·1	S	148	28,763	L38·4	122	24,087	L20·8
N. Klerksdorp	10	954	L11·3	D	111	11,937	L89·0	128	13,467	L65·8
Rand Leases	183	26,261	14·8	J	901	130,806	58·8	882	134,217	56·0
Village M.R.	26	4,787	1·5	J	136	23,545	2·5	168	27,665	33·6
Virginia O.F.S.	114	30,051	42·0	J	551	144,508	227·6	505	134,841	350·2
Others										
Kleinfontein	80	10,499	3·0	D	954	117,558	L22·1	1,082	128,682	43·5
Wit. Nigel	17	4,209	5·3	J	89	21,498	31·2	89	21,278	19·2

Gold has been valued at 249s. 7d. (October 249s. 7d.) per oz. fine. L indicates loss. † Working Profit. * Working Profit includes sundry revenue. Table excludes profits from Uranium, Pyrite and Acid, and also production from Uranium divisions at Luipaards Vlei, Randfontein and W. Rand Consolidated.

Metal and Mineral Trades

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